

RECLAMATION

Managing Water in the West

Final Boise/Payette Water Storage Assessment Report



U.S. Department of the Interior
Bureau of Reclamation
Pacific Northwest Region

July 2006

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Prepared for
U.S. Department of the Interior
Bureau of Reclamation
Pacific Northwest Region

July 2006

U.S. DEPARTMENT OF THE INTERIOR

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor and trust our responsibilities to Indian tribes and our commitments to island communities.

MISSION OF THE BUREAU OF RECLAMATION

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Executive Summary

Background

Throughout the arid west and southwestern Idaho, rapid urbanization of land previously used for agricultural purposes (including cropland, pasture, and dairies) has created water management challenges. Comprehensive water supply and water management incorporates multiple elements including optimizing existing supplies, conjunctively managing surface water and groundwater, developing water conservation strategies, and identifying additional potential supplies to meet increasing demand. The broad issue of water supply and water management is certainly not new to the Boise and Payette River basins, which together contain nearly 40 percent of Idaho's population. Recent prolonged drought conditions, in combination with urban growth, motivated local water users' request that Reclamation conduct this assessment as a first step in the process of evaluating additional water storage opportunities in these two basins. An assessment is generally a preliminary survey of problems and needs that utilizes existing information to explore conceptual solutions to water resources issues in specific areas. This assessment focuses primarily on new or enhanced storage capabilities, including new on-stream and off-stream reservoir storage facilities, and retrofitting of existing reservoir facilities.

This assessment is just one activity and one aspect of the many activities that multiple agencies are conducting to address water supply and water management issues in the Boise and Payette River basins. A broad-based stakeholder working group (SWG) was convened to participate in the assessment effort. More than 60 invitations to participate were sent to a broad spectrum of local water users and interested parties including Federal partners, State partners, and local partners; irrigation interests; flood control districts; and environmental groups. Participants provided review and commentary throughout each stage in the assessment, culminating with review of this report.

The stakeholder working group also identified a number of non-physical or administrative water storage opportunities that did not fit into the defined scope of this assessment. These opportunities include water conservation (including upgrading delivery canals), modifying existing reservoir minimum pool operations (for example, at Cascade Reservoir), and expanding authorization at existing storage facilities to include other water uses. These opportunities were not evaluated in this assessment because they are outside the scope of the effort, but they could be pursued by other agencies and stakeholders or could be considered in separate or future Reclamation studies.

Assessment Area

Reclamation's Boise Project (which includes both the Boise and Payette River basins) includes six reservoirs, two diversion dams, three Federal powerplants, seven pumping plants, 720 miles of main canals, more than 1,300 miles of smaller canals, and 650 miles of drains (there are also other facilities operated by other government agencies and private entities). Irrigation is generally the primary purpose of all authorized Reclamation facilities in the Boise Project, and flood control, recreation, or fish and wildlife enhancement are

viewed as project functions or benefits that are national in scope and were generally added through legislation.

The Boise Project has an active capacity to store and distribute 1.95 million acre-feet of water. Estimated demand volumes over a 50-year planning horizon were used in this assessment to define conceptual storage needs. Those storage needs are then used to develop volume criteria to help assess potential storage opportunities. Three types of water uses were considered:

1. Consumptive Uses (domestic, commercial, municipal, and industrial [DCM&I], Irrigation)
2. Flood Control Capacity
3. Flow Augmentation

Demand projections (and thus estimated additional supply volumes) are presented with ranges of uncertainty because they reflect long-range planning-level estimates that would need to continue to be refined in subsequent appraisal/feasibility analysis. This assessment suggests that between 62,470 and 386,430 acre-feet (AF)/year of additional surface water storage might be needed between both basins. The relationship between where the water will be needed, and when future demands will need to be met, will ultimately control the decision of how much water can or should be supplied by surface water facilities.

Assessment Process

Following the development of conceptual storage needs, more than 200 potential storage sites that had been previously identified were assessed. The comprehensive list of potential storage sites was narrowed down to a manageable number for more detailed evaluation in three steps:

- Compile and summarize existing written documents via a Literature Report. Query stakeholders on other non-published pertinent information.
- Screen initial list of 200+ sites to a smaller list of 56 potential sites.
- Rank smaller list of potential sites to determine areas that best represent opportunities for new storage.

A comprehensive literature review was conducted to assemble the most complete list of historic studies and reports that have provided recommendations for potential water storage opportunities within the Boise and Payette River basins. The literature review assembled 53 documents that dated back to 1938, produced by a wide range of entities and organizations. In addition to reviewing available documentation and literature, members of the stakeholder working group were also encouraged to provide any additional pertinent information that may have been unpublished or otherwise known.

Because an assessment study generally relies on existing information, identified data gaps were related directly to the sheer number of sites evaluated and the current lack of specificity of a potential site. Despite a relatively robust library of existing literature and current stakeholder input, data gaps on benefits associated with potential new storage included information related to fisheries, recreational uses, tourism effects, water quality, wetland mitigation, and hydropower.

More than 200+ new and existing storage sites were identified and initially screened to determine a subset of sites that would most likely meet assessment objectives. The initial screening process was based on four “exclusionary” screening criteria that were used to identify new or existing sites that should not be carried forward for more detailed analysis. These criteria include:

- *Hydrology/Refill Capacity.* A preliminary yield potential of the site (i.e., the percentage of years it would re-fill under long-term average hydrologic conditions) helped to determine whether a site could reliably refill.
- *Special Designations.* Sites located on reaches with special designations such as Wild and Scenic Rivers may be more difficult to develop.
- *Endangered Species/Bull Trout Habitat.* Sites located with reaches that support critical bull trout life stages (such as spawning) may be more difficult to develop.
- *Minimum Storage Volume.* Given the large uncertainty with estimated water supply storage needs, a minimum of 50,000 AF of storage required of all potential new storage sites (existing retrofitting opportunities were not screened against this criterion).

Based on this screening process, a total of 56 sites in both basins were carried forward to the ranking process. The smaller and more refined list of potential storage opportunities was evaluated further and ranked to identify the water storage opportunities with the most potential for success and to make recommendations on which opportunities should be carried forward to an appraisal/feasibility analysis. The ranking of potential candidate site screening followed three lines of analysis:

- *Refined hydrologic analysis:* Reclamation’s MODSIM model was used to determine the overall quantities of water available for new storage in each basin given current operating limitations (for example, water contracts, water rights, existing regulatory or administrative minimum flows, and other relevant aspects/realities of current operations).
- *Socio-economic and environmental constraints analysis:* Candidate reservoir sites were compared in terms of their relative potential impact on such socio-economic and environmental factors as infrastructure, recreation, and biological resources.
- *Needs analysis:* The results of hydrologic and constraints analysis were reviewed critically to ensure that final potential candidate sites were capable of meeting a full range of defined needs and achieving a wide range of benefits.

Results

The results of the screening and ranking process indicated that viable potential water storage sites tend to cluster in discrete reaches and subbasins. To be more useful in future studies, these clusters are identified as “areas of opportunity.” Eight “areas of opportunity” are pockets in each of the basins where excess natural water supplies may be available for storage and where, at an assessment-level analysis, there are apparently fewer potential socio-economic and environmental effects relative to other areas within each basin (see Section 3.3). The “areas of opportunity” each contain several of the most promising sites and represent a starting point for future analyses.

Recognizing that the top candidates in each basin are located within a few broad reaches (because these areas represent that balance between providing downstream use benefits and minimizing impacts), “areas of opportunity” are delineated so that future analysis is not limited to potential candidate sites that were previously identified in the literature.

Each of the eight “areas of opportunity” is characterized by the source water that would either be retained within an on-stream facility, or diverted to an off-stream facility. Hence, each “area of opportunity” actually encompasses two components: source water and specific storage sites that would have the greatest potential for success. In addition to the “areas of opportunity” for new storage sites, a few existing retrofitting opportunities have the potential to be carried forward to an appraisal/feasibility analysis. Identified “areas of opportunity” are shown in Figure ES-1 (located at the end of the Executive Summary).

“Areas of opportunity” in the Boise River basin include the following.

- *Lower South Fork Boise.* Water could be diverted from the Lower South Fork Boise River into an off-stream storage facility. Approximately 50,000 to 60,000 AF could be stored and delivered reliably 90 percent of the time to water users for uses such as DCM&I, irrigation, flow augmentation, and potentially limited flood control capacity depending on the configuration of the off-stream diversion structure and conveyance. Any development would need to further analyze impacts to important bull trout wintering habitat and avoid diversion from the State-designated Natural River section of the reach.
- *North Fork/Middle Fork Boise.* Water could be either stored in an on-stream facility or diverted from the North Fork/Middle Fork Boise River to an off-stream storage facility. Approximately 50,000 AF could be stored and delivered reliably 90 percent of the time to water users for uses such as DCM&I, irrigation, flood control capacity, and flow augmentation. Any development would need to further analyze impacts to important bull trout wintering habitat and avoid diversion from the State-designated Natural River section of the reach.
- *Raising Lucky Peak, Arrowrock, or Anderson Ranch Dams.* Various entities have evaluated raising the height of these dams to create an additional 6,300 AF (Lucky Peak/Arrowrock) to 29,000 AF (Anderson Ranch) of storage capacity. Retrofitting existing facilities meets all uses, including DCM&I, irrigation, flood control capacity, and flow augmentation. Any increased footprint resulting from dam raising would need to further analyze impacts to important bull trout habitat and State-designated Natural River reaches.

“Areas of opportunity” in the Payette River basin include the following.

- *Lower South Fork Payette.* Water could be diverted from the Lower South Fork Payette River into an off-stream storage facility located either within the Payette River basin or via a transbasin transfer to the Boise River basin. Between 150,000 AF and 225,000 AF could be stored and delivered reliably 90 percent of the time to water users for uses such as DCM&I, irrigation, and flow augmentation, and potentially flood control capacity depending on the configuration of the off-stream diversion structure and conveyance. Any development would need to further analyze impacts to downstream flows at Letha and the State-designated Recreational River section of the reach.

- *Lower North Fork Payette.* Water could be diverted from the Lower North Fork Payette River into an off-stream storage facility in Squaw Creek or Scriver Creek/Middle Fork Payette. Approximately 300,000 AF could be stored and delivered reliably 90 percent of the time to water users for uses such as DCM&I, irrigation, flow augmentation, and potentially limited flood control capacity depending on the configuration of the off-stream diversion structure and conveyance. Any development would need to further analyze impacts to the State-designated Recreational River section of the reach.
- *Mainstem Payette.* Water could be diverted from the Lower Mainstem Payette River into an off-stream storage facility in Dry Buck Creek, Lower Squaw Creek or Upper Shafer Creek. Approximately 300,000 AF could be stored and delivered reliably 90 percent of the time to water users for uses such as DCM&I, irrigation, flow augmentation, and potentially limited flood control capacity depending on the configuration of the off-stream diversion structure and conveyance. Any development would need to further analyze impacts to Black Canyon Reservoir and the State-designated Recreational River section of the reach.
- *Lower Payette.* Water could be diverted from the Lower Payette River into an off-stream storage facility. Approximately 300,000 to 400,000 AF could be stored and delivered reliably 90 percent of the time to uses including primarily flow augmentation (little to no use for DCM&I or irrigation water this low in the Payette River basin). There may be limited flood control capacity depending on the configuration of an off-stream diversion structure and conveyance. There are no State- or Federal- designated reaches within this area that would preclude diversion and/or storage.
- *Dredging Cascade Reservoir.* Reclamation has identified potentially dredging 50,000 AF of sediments in Cascade Reservoir to create more active capacity. Retrofitting existing facilities meets all uses, including DCM&I, irrigation, flood control capacity, and flow augmentation. This would not have any effect on the reservoir footprint, and there are no State- or Federal-designated reaches that would be affected.

The distribution of these areas is weighted toward the Payette River basin because this basin has a relatively lower incidence of potential socio-economic and environmental concerns. However, the majority of projected water uses are located in the Boise River basin. Therefore, “areas of opportunity” that received relatively lower scores in the Boise River basin (as compared to “areas of opportunity” in the Payette River basin) were retained and are recommended for consideration in future appraisal/feasibility analysis.

Within each of these eight “areas of opportunity,” there is some flexibility in how future storage sites might be configured using a combination of diversion structures, on-stream or off-stream storage facilities, and water release rules that would work with existing reservoir operations. Some combination of physical structures or inter-basin exchanges may provide the greatest flexibility in meeting future water needs in both basins.

Next Steps

This report completes an assessment of storage opportunities in the Boise and Payette River basins. The next step in the Federal planning process for a water storage project typically includes a more in-depth analysis of identified opportunities (in this case, the identified eight “areas of opportunity”). More detailed analysis is called an appraisal study, and an appraisal study includes an in-depth inventory of water and land resources in a chosen “area of opportunity;” the formulation of alternative plans; the evaluation of the effects of the alternatives; a comparison of alternatives; and the selection of a recommended action based on the comparison of alternatives.

If the appraisal study recommends a viable solution with a Federal role, then that alternative could be evaluated at the next step, which is a feasibility study. Feasibility studies normally integrate constructability with compliance under a number of legislative and regulatory constraints, such as the National Environmental Policy Act, U.S. Fish and Wildlife Service (USFWS) Coordination Act, Endangered Species Act, National Historic Preservation Act, and other related executive orders, environmental, and cultural resource laws.

Feasibility studies cannot be initiated until specifically authorized by Congress and require a 50 percent cost share from future beneficiaries of the project. Reclamation recognizes that given the necessary involvement of Congress in authorizing the project and necessary partnerships for funding future phases of this work, broad-based stakeholder support is required. Federal water resource planning should be responsive to State and local concerns and should provide the opportunity for State and local agencies to participate in the planning process. It is recognized that water projects that are local, regional, State, or even interstate in scope do not necessarily have a large Federal role. State and local entities are free to initiate planning and implementation of water projects without Federal participation.



Figure ES-1. Identified “Areas of Opportunity”

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Acronyms and Abbreviations

AF	acre-feet
ASR	aquifer storage and recovery
BLM	Bureau of Land Management
BPBOC	Boise Project Board of Control
CDC	Conservation Data Center
cfs	cubic feet per second
COMPASS	Community Planning Association of Ada and Canyon Counties
CSU	Colorado State University
CWA	Clean Water Act
DCM&I	Domestic, commercial, municipal, and industrial
DEM	Digital Elevation Model
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
GIS	Geographic Information Systems
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IDWR	Idaho Department of Water Resources
IWRB	Idaho Water Resources Board
IWRRI	Idaho Water Resources Research Institute
MAF	million acre-feet
NEPA	National Environmental Policy Act
NMID	Nampa & Meridian Irrigation District
Reclamation	U.S. Bureau of Reclamation
SWG	Stakeholder Working Group
USACE	U.S. Army Corps of Engineers
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

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1. Introduction

1.1 Assessment Purpose

The arid west was developed, in large part, because of the ability to effectively manage a scarce water supply. In many ways, the culture and way of life in the arid west is defined by water: *How much water do we have? Where is the water? How and why are we using that water?*

Within southwestern Idaho, these questions are becoming even more important to ask and answer as demands on a finite water supply continue to increase. Historically, water management consisted of conveying available surface water, and later on groundwater, to dry lands so that agricultural crops could be irrigated. As the amount of irrigated land and the demand to provide water to that land increased, management shifted to incorporate storage of wetter off-season (winter and spring) surface flows so that stored water was available to agricultural lands during the drier summers. Water management evolved to include flood control, because as the population grew and inhabited more riparian corridors, property damage from uncontrollable spring flows increased. The growing population also meant more demand for non-agricultural water supplies, and placed additional pressure on the available water supply.

Throughout the arid west, including southwestern Idaho, rapid urbanization of land previously used for agricultural purposes (including cropland, pasture, and dairies) has created water management challenges. In 2002, participants at the Treasure Valley Water Summit identified a primary water management goal to be “a sustainable supply of high quality water for domestic, commercial, municipal, and industrial (DCM&I) and irrigation users for the foreseeable future without causing unintended adverse impacts to the basin hydrology” (COMPASS, 2002). This goal reinforces the critical need for long-term planning for water supply and water management.

Comprehensive water supply and water management incorporates multiple elements including optimizing existing supplies, conjunctively managing surface water and groundwater, developing water conservation strategies, and identifying additional potential supplies to meet increasing demand. In Idaho, multiple agencies are charged with managing different aspects of our water resources. Local cities and counties are charged with, among other things, developing floodplain management strategies and land use/growth management plans. Irrigation districts and canal companies manage water delivery to, and drainage from, agricultural lands. The Idaho Department of Water Resources (IDWR) and the Idaho Water Resources Board (IWRB) have many responsibilities including administration and management of water rights, water supply outlook estimation, coordination of the national flood insurance program, and development of the comprehensive State water plan and subsequent basin plans. The Idaho Department of Environmental Quality (IDEQ) is charged with managing the water quality of our streams. The U.S. Army Corps of Engineers (USACE) is charged with flood control management. In Idaho, the U.S. Bureau of Reclamation (Reclamation) manages the storage and delivery of surface water, and is authorized to manage and coordinate programs that develop innovative water management tools and partnerships to meet the growing demand for water.

At the request of local water users, Reclamation agreed to identify and assess potential new surface water supply storage opportunities within the Boise and Payette River basins, as one component of an overall water supply and water management process. This assessment focuses primarily on new or enhanced storage capabilities, including new on-stream and off-stream reservoir storage facilities¹, and retrofitting of existing reservoir facilities.

1.1.1 Background

The broad issue of water supply and water management is certainly not new to the Boise and Payette River basins, which together contain nearly 40 percent of Idaho's population (U.S. Census, 2000). Recent prolonged drought conditions, in combination with urban growth, motivated local water users and Congressman Butch Otter to meet in 2003 and 2004 to discuss the potential need, support, and opportunities for additional water storage. These meetings resulted in a confirmed desire by local water users to pursue water storage opportunities in the Boise and Payette River basins.

Historic water storage studies were conducted for a variety of reasons ranging from supporting economic development, to conceptualizing specific reservoir sites. The Snake River basin comprehensive water storage study conducted by Reclamation and USACE in 1994 is the most recent of more than 50 published documents (dating back to 1938) that address one or more elements of water supply and storage within the two basins.² Many things have changed over the years, including increased urbanization, shifting water uses and needs, adjudication of water rights, habitat considerations, recreational uses, power generation, and evolving socio-economic and environmental values. The local water users and Congressman Otter recognized that many things have changed since those past studies were completed and a more current assessment of water storage opportunities was needed.

In 2005, the State legislature passed a resolution (House Concurrent Resolution No. 25) supporting the study of additional water supplies for Idaho, setting the stage for local and State support for the study. Idaho Water Users Association formally agreed to be a study sponsor and requested that Reclamation conduct studies on potential water storage sites in the Boise and Payette River basins. Reclamation agreed to conduct this assessment as a first step in the process of evaluating additional water storage opportunities in these two basins. Invitations to participate in this assessment process were sent to 60 potentially interested parties, of which 25 expressed a direct desire to participate. More information on the development and participation of the Stakeholder Working Group (SWG) is provided in Section 1.2.

1.1.2 Reclamation's Authority to do this Assessment

Authorization to conduct assessments is provided under the Reclamation Act of 1902 (June 17, 1902) 32 Stat 388, and those Acts amendatory thereof and supplementary thereto. The 1902 Act and supplementary Acts authorize Reclamation to manage and coordinate those Idaho Investigations programs that develop innovative water management tools and

¹ An on-stream site is defined as any site within a drainage-way that has sufficient year-round flow to fill at a specified frequency from waters within the drainage. An off-stream site is defined as being located on or adjacent to a drainage-way and requiring intra- or transbasin sources to fill at a specified frequency.

² These documents also formed the baseline for this assessment, as discussed in Chapter 3.

partnerships to meet the growing demand for water in the American West. The Idaho Investigations program mission is to work with its partners to conduct innovative studies to address regional water resource issues while addressing the goals in the Department of Interior's and Reclamation's Strategic Plans.

The Federal water resource planning process involves several levels of planning, starting with an assessment and then moving to appraisal/feasibility analysis. An assessment study is generally a preliminary survey of problems and needs that utilizes existing information to explore conceptual solutions to water resources issues in specific areas. The assessment helps determine the Federal role and the desirability of potential partner(s) to proceed to appraisal/feasibility analysis.

Specific authority must be provided by Congress for Reclamation to conduct feasibility studies. At the time of this assessment report publication, Congressman Butch Otter has introduced legislation (H.R. 2563) that would provide broad authority for Reclamation to conduct feasibility studies to address water storage opportunities in the Payette and Boise River basins. Additional information on next steps in the Federal water resources planning process is provided in Chapter 5.

1.1.3 Scope

This assessment is just one activity and one aspect of the many activities that multiple agencies are conducting to address water supply and water management issues in the Boise and Payette River basins. The focus of this assessment is to identify and assess potential new surface water supply storage opportunities within these basins. Other water supply and water management components such as optimizing existing supplies, conjunctively managing surface water and groundwater, and developing water conservation strategies are outside of this assessment's scope.

A broad-based SWG was convened to participate in the assessment effort (see Section 1.2). The SWG identified a number of non-physical or administrative water storage opportunities that did not fit into the defined scope of this assessment. These opportunities include water conservation (including upgrading delivery canals), modifying existing reservoir minimum pool operations (for example, at Cascade Reservoir), and expanding authorization at existing storage facilities to include other water uses. These opportunities will not be evaluated in this assessment because they are outside the scope of the effort, but they could be pursued by other agencies and stakeholders or could be considered in separate or future Reclamation studies.

More than 200 potential new storage sites or options have been identified in the historic literature (as discussed in more detail in Chapter 3). To examine and prioritize current water storage opportunities, this assessment builds upon the historic foundation of information to the extent possible. As defined earlier, an assessment study generally determines the desirability of proceeding to either an appraisal/feasibility analysis by relying primarily on existing data and information.

Even though a large body of information is available, the quality of that information is limited and there are data gaps. Where information was not available, reasonable assumptions were made in the analysis. The best example of this is the development of estimated future water needs (Chapter 2). To generally estimate how much additional storage

might be needed over a 50-year planning horizon, existing water demand projections and regional long-range planning assumptions developed by IDWR were extrapolated using very simple methods. Simple methods were used recognizing that demand projections are not the focus of this assessment, and as long-range future demands are developed in more detail by IDWR, this information can and should be incorporated into the comprehensive water management process. Such data gaps will need to be addressed more thoroughly at subsequent levels of investigation.

This assessment builds on the existing body of information over the last 75 years, including most importantly the 1994 Reclamation/USACE report, to develop a consolidated list of potential new water storage sites in the Snake River basin. More than 200 previously identified sites within the Boise and Payette River basins have been consolidated from over 50 past reports. These sites have been evaluated in this assessment process based on three primary criteria:

- Volume—Which sites are large enough to meet possible future water demands?
- Hydrologic Feasibility—Which sites can reliably refill based on existing facility operations, current water rights and water delivery commitments, and current stream flow targets?
- Socio-economic and Environmental Constraints—Which sites are located in areas that have the lowest impact (relative to other potential sites) on socio-economically and/or environmentally important factors (for example, infrastructure and/or protected rivers)?

Project objectives are as follows:

1. Contribute to long-range regional water management planning activities by identifying new water storage.
2. Begin with the broadest possible base of historic and current information so that appropriate storage opportunities can be considered.
3. Develop a process that logically and defensibly consolidates identified opportunities to a manageable number, by relying on a common set of hydrologic criteria coupled with an assessment of impacts on socio-economically or environmentally important factors.
4. Incorporate stakeholder input in identifying relevant historic information, providing accurate current information, understanding diverse perspectives (particularly associated with the socio-economic or environmental factors), and gaining some level of consensus.

1.1.4 Report Organization

This report is organized as follows:

- Executive Summary—Provides an overview of the assessment methods and conclusions.
- Chapter 1—Presents the background information necessary to understand the scope of this assessment, including its limitations.

- Chapter 2—Discusses estimated future water needs.
- Chapter 3—Summarizes how potential storage sites were identified, how screening criteria were selected and developed, and how potential storage sites were screened against these criteria.
- Chapter 4—Evaluates areas identified as having the highest potential for future water storage and discusses the conclusions of this assessment and potential path forward for further analysis.
- Chapter 5—Describes the next steps in moving forward with a specific recommendation for further analysis in the Federal water resource planning process.
- Chapter 6—Provides references cited in this assessment.

Report appendixes also provide important back-up information as follows:

- Appendix A—Provides a list of SWG participants.
- Appendix B—Presents SWG meeting agendas, presentation materials, and summary notes.
- Appendix C—Presents an overview of conservation estimates from adjacent arid states.
- Appendix D—Includes a Literature Report that summarizes existing documents and information.
- Appendix E—Summarizes information relating to the hydrologic modeling that helped support this assessment.
- Appendix F—Records stakeholder input on the relative importance of various socio-economic and environmental factors.
- Appendix G—Summarizes the scoring of specific sites against identified socio-economic and environmental factors.
- Appendix H—Summarizes the approach and assumptions used to develop assessment construction cost estimates.
- Appendix I—Provides a list of definitions used for technical terms in this assessment.
- Appendix J—Provides a break-down of land uses that would be affected by potential storage sites.

1.2 Stakeholder Working Group

A broad-based SWG was formed to participate in the assessment effort. Over 60 invitations to participate were sent on July 13, 2005, to a broad spectrum of local water users and interested parties including Federal partners, State partners, and local partners; irrigation interests; flood control districts; and environmental groups. Participants were invited to be a part of this effort based on their long-standing expertise and historic knowledge of regional water resources including regulatory, environmental, water use, and infrastructure issues. Of

those invited, 25 agencies and entities were represented in regular SWG meetings, and another five requested to be kept up to date via a general mailing list. The initial meeting was held on August 23, 2005, and the final meeting was held on March 14, 2006.

SWG participants provided review and commentary throughout each stage in the assessment, culminating with review of this report. The SWG met six times during the assessment effort. Stakeholder agencies and organizations comprising the SWG included the following (see Appendix A for a list of the individuals representing these stakeholders).

Federal Agencies:

- U.S. Bureau of Reclamation
- U.S. Army Corps of Engineers
- U.S. Bureau of Land Management
- U.S. Environmental Protection Agency
- U.S. Geological Survey

State Agencies:

- Idaho Department of Fish and Game
- Idaho Department of Water Resources
- Idaho Water Resources Board

Local Agencies, Districts, and Other Organizations:

- Boise Project Board of Control
- Canyon County Planning and Zoning Commission
- City of Boise
- Congressman Otter's Office
- Holladay Engineering Company (representing multiple cities and districts)
- Idaho Farm Bureau Federation
- Idaho Rivers United
- Idaho Water Users Association
- J.R. Simplot Company
- Nampa & Meridian Irrigation District
- Payette County
- Pioneer Irrigation District
- Settlers Irrigation District
- Senator Crapo's Office
- Trout Unlimited
- United Water Idaho
- Water District 63, Boise
- Water District 65, Payette

SWG meeting agendas and summary notes were made available on Reclamation's project Web site throughout the process, and are included in Appendix B.

1.3 Assessment Area

The Boise and Payette River basins are in the southwest area of Idaho (Figure 1-1). The two basins are complex watersheds in terms of their development histories and current management goals. These basins are among the fastest growing areas in Idaho and are experiencing increased pressure to find water supplies to meet growing demands. The growth and the historical Federal presence in both the Boise and Payette River basins, through the development of the Boise Project, made this watershed an excellent candidate for evaluating future water storage opportunities. Figure 1-1 presents the boundaries of Reclamation's Boise Project, which consists of the Arrowrock and Payette Divisions (Reclamation, 2005a).

A summary of general factors in the assessment area is provided in this section, and includes overviews of socio-economic issues, hydrologic characteristics, management of the existing water storage system, and instream flow issues.

1.3.1 Socio-economic Description

The Boise River basin is the most diverse socio-economic area of Idaho and includes the State capitol, as well as the larger Treasure Valley metropolitan area. The Payette River basin contains a number of growing towns that cater to recreational tourism, with a strong agricultural land use base. Additional water will be required to meet competing needs associated with a growing population and high rates of urbanization, coupled with the need to sustain agricultural production.

Both basins represent high growth areas of the State. Between 1970 and 2000, the population of Ada and Canyon Counties increased from 175,000 to 400,000, representing a growth rate of 7.6 percent annually (IDWR, 2001). Within the Payette River basin, Boise, Gem, Payette, and Valley Counties grew at an average rate of 6.6 percent annually between 1970 and 1996 (this rate declined to 4.4 percent between 1990 and 1996 [IDWR, 1999]). Such rapid growth places increasing pressure on existing water supplies and continued population growth will mean that additional water supplies will be necessary, as discussed in more detail in Chapter 2.

The most recent water use numbers for the Boise River basin are from 2000, and the most recent water use numbers for the Payette River basin are from 1996. In 2000, annual DCM&I water usage in the lower Boise River basin was 121,000 acre-feet (AF) (IDWR, 2001). Irrigation consumption in the Boise River basin in 2000 was estimated at 1,156,700 AF of surface water and 53,000 AF of groundwater (McGown, 2004). Irrigation uses include both agricultural consumption, as well as urban landscaping consumption. Thus, the combined consumptive use in the Boise River basin in 2000 was 1.3 million acre-feet (MAF).

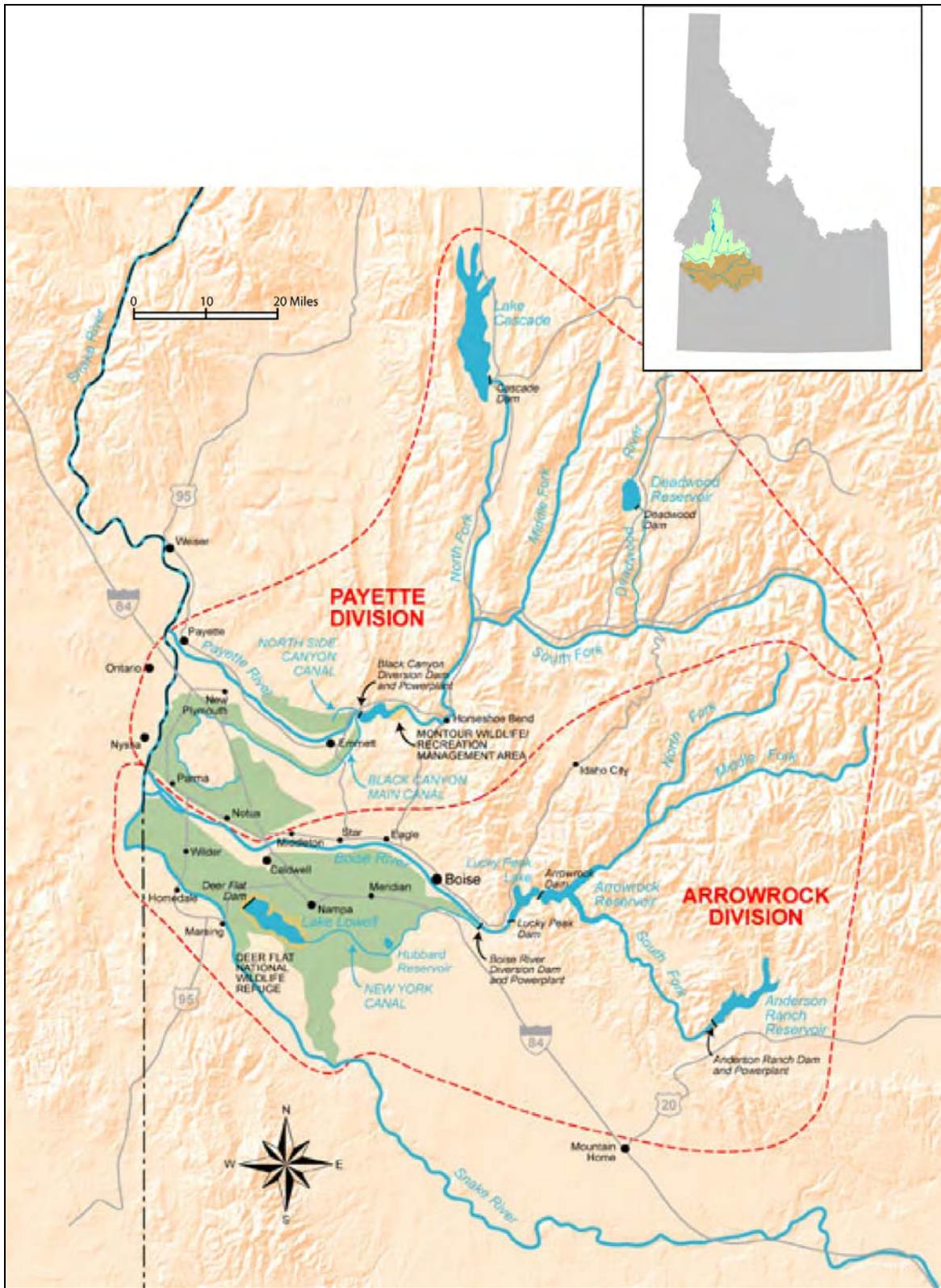


Figure 1-1. Boise Project: Boise and Payette River Basins
Source: Reclamation, 2005a

Similarly, in 1996 annual DCM&I water usage in the Payette River basin was 31,900 AF (IDWR, 1999). Irrigation consumption was estimated at 1,150,000 AF of surface water and 52,000 AF of groundwater (IDWR, 1999). Within the Payette River basin, crops over the last 10 years have generally moved to higher-value crops that require higher levels of irrigation (potatoes and sugar beets). The combined consumptive use in the Payette River basin in 1996 was 1.2 MAF.

Projected DCM&I and irrigation demands are discussed in more detail in Chapter 2.

1.3.2 Physical Hydrology

The Boise River originates as three forks—the North Fork, Middle Fork, and South Fork—to the east and northeast of the City of Boise (see Figure 1-1 for the locations of the major river forks in both basins). Surface water flows of the three forks are generally west and southwest to where they join to form the mainstem, approximately 20 miles east of the City of Boise. Mores Creek (and its major tributary, Grimes Creek) flows generally south, drains an area to the west of the three forks of the Boise River, and flows into Lucky Peak Reservoir. The Boise River continues west through the City of Boise and past the edge of the City of Caldwell to join the Snake River.

The Payette River also originates as three forks—the North Fork, Middle Fork, and South Fork. Surface water flows in the North and Middle Forks are generally south, and the Middle Fork joins the South Fork, which flows west, just downstream from Garden Valley. Downstream from the confluence, the South Fork is generally referred to as the mainstem, which is joined by the North Fork upstream from Banks. The mainstem flows southwest to Horseshoe Bend and through Black Canyon, joining the Snake River downstream from the town of Payette.

Figure 1-2 presents the annual precipitation within both basins (IDWR, 2005). This figure shows that while the majority of rainfall (more than 25 inches per year) occurs within the higher elevations, the population centers and large-scale agricultural uses are in relatively lower elevations with less rainfall (less than 25 inches per year). Thus, there is currently sufficient water leaving the basins, but additional storage is necessary to capture and make use of it. For example, the upper Boise River watershed produces about 2 MAF of water into the lower Boise River watershed in an average year, of which about 1 MAF leaves the lower Boise River at its mouth near Parma.

Available precipitation data also show that the Payette River basin (4,100 square miles), which is a larger basin relative to the adjacent Boise River basin (3,300 square miles), is dominated by higher precipitation. On an inch-per-square-mile basis, the Payette River basin receives nearly double the volume of precipitation compared to the Boise River basin.

This translates into higher runoff on an annual basis in the Payette River basin. Figure 1-3 shows the estimated natural³ runoff patterns for both basins.

³ Natural flows for the Boise River basin incorporated gage data from Featherville (USGS 13186000) and Twin Springs (USGS 13185000). Natural flows for the Payette River basin incorporated gage data from South Fork Lowman (USGS 13237920).

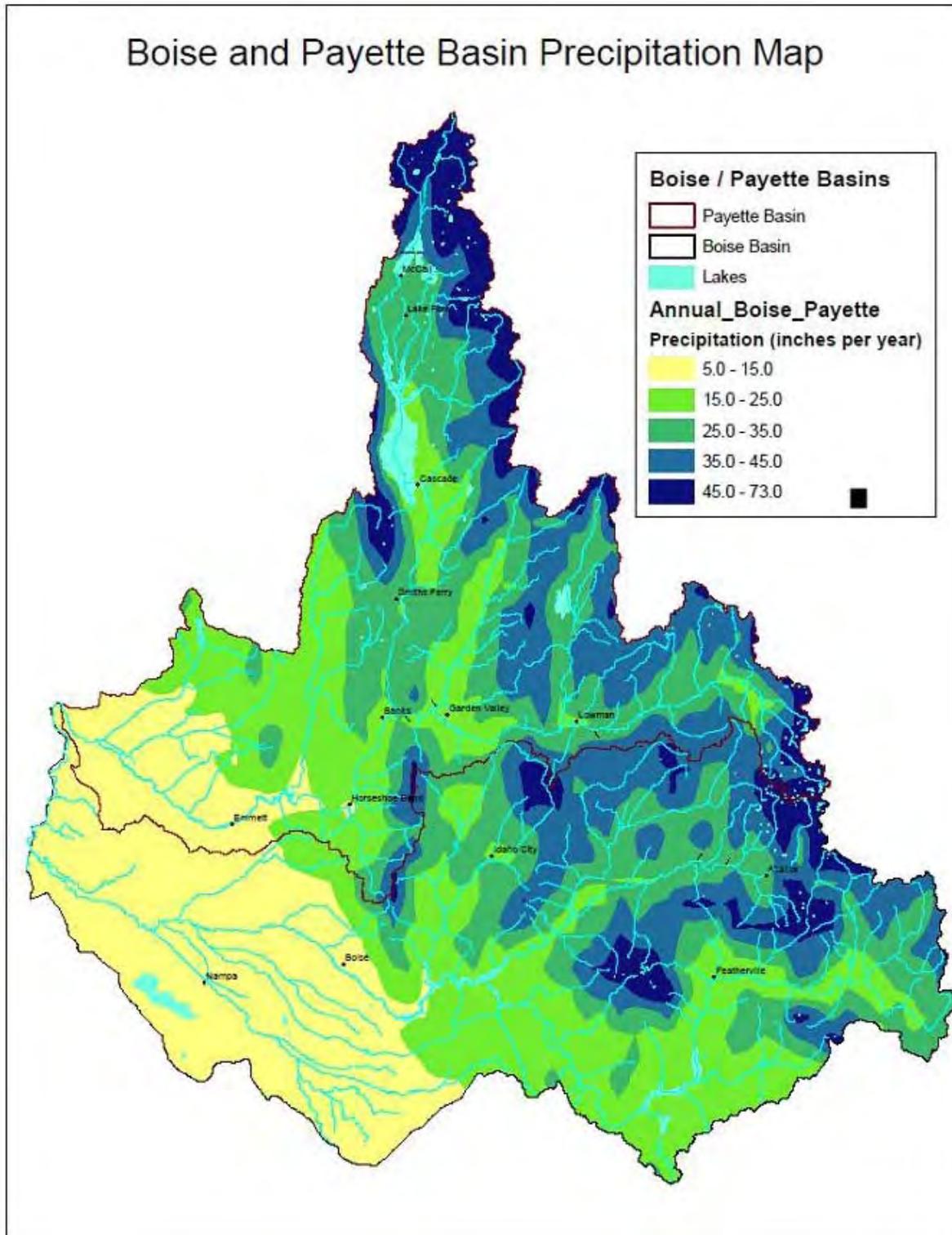


Figure 1-2. Annual Precipitation
Source: IDWR, 2005

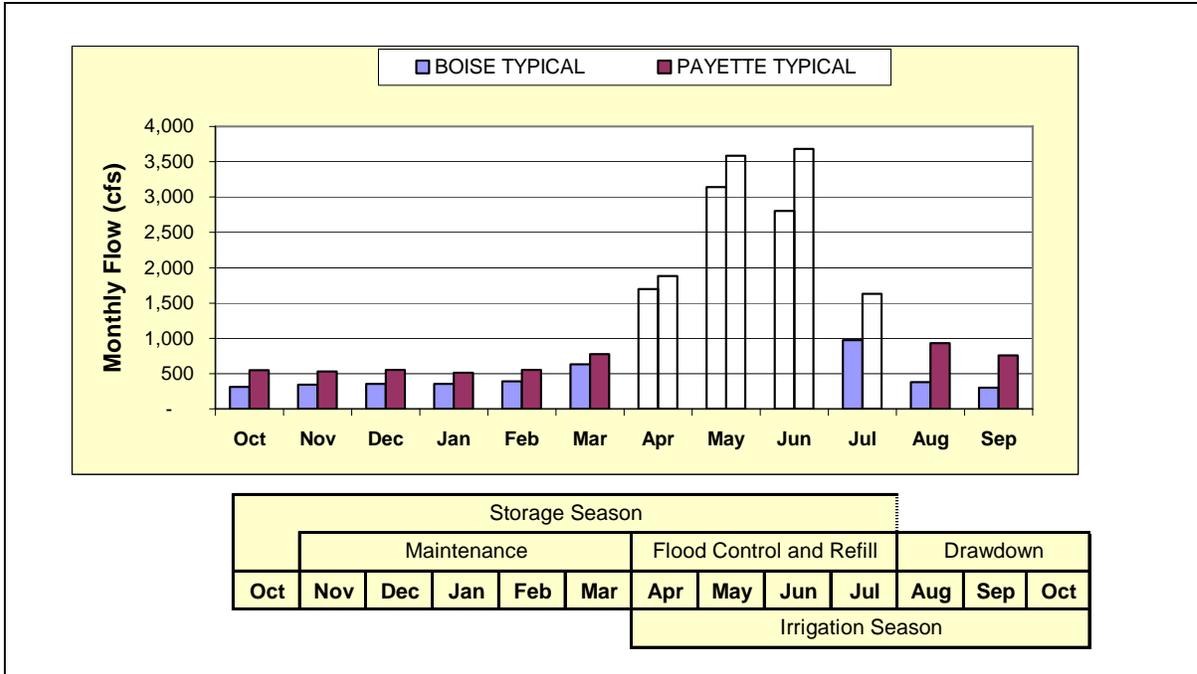


Figure 1-3. Estimated Annual Runoff Patterns
Sources: USGS, 2004; Reclamation, 1997

Gage records (see Footnote 3) indicate that 37 percent greater runoff is observed in the Payette River basin relative to the Boise River basin. Based on these records, between 65 and 70 percent of this runoff occurs in the April-July spring flood season, when snowpack in the upper elevations melts as daily temperatures increase. Infrequent rain-on-snow events, where rainfall melts existing snow cover, can also cause widespread regional flooding such as the January 1997 flood event that affected both basins.

Storage for downstream uses of the runoff occurs between October and July, although storage during the April-July period must be balanced with flood control. Drawdown typically occurs between August and October, depending on the water year condition. Operational issues associated with multiple uses of the existing storage facilities are discussed in more detail in the following section.

These runoff volumes and patterns are based on historic data and do not consider potential future volume or pattern changes due to possible climate change impact. Throughout the Pacific Northwest, warmer temperatures are predicted to result in progressively smaller snowpack and earlier runoff (Climate Impacts Group, 2006). If such regional predictions occur within the Boise and Payette River basins, smaller snowpack and earlier runoff may impact current water storage patterns and may lead to the need for additional water storage.

1.3.3 Existing Regulation Development and Operations Overview

Large-scale organized irrigation came to the lower Boise River in the 1860s and 1870s, long before Reclamation was established. By that period, the greatest need was for a water storage system to supplement river flows during the later summer months when irrigation demands exceeded natural river supplies.

The Boise Project began in 1906 by extending the New York Canal 40 miles to convey water from the Boise River Diversion Dam to Lake Lowell. In the Payette River basin, Black Canyon Diversion Dam was constructed in 1924 as the first diversion from the Payette River. Since then, the Boise Project has evolved to provide full irrigation water supply to approximately 224,000 acres and a supplemental supply to some 173,000 acres. While the majority of lands within each basin are irrigated with water from that basin, a limited amount of land (7,000 acres) is irrigated by water that is diverted from both basins.

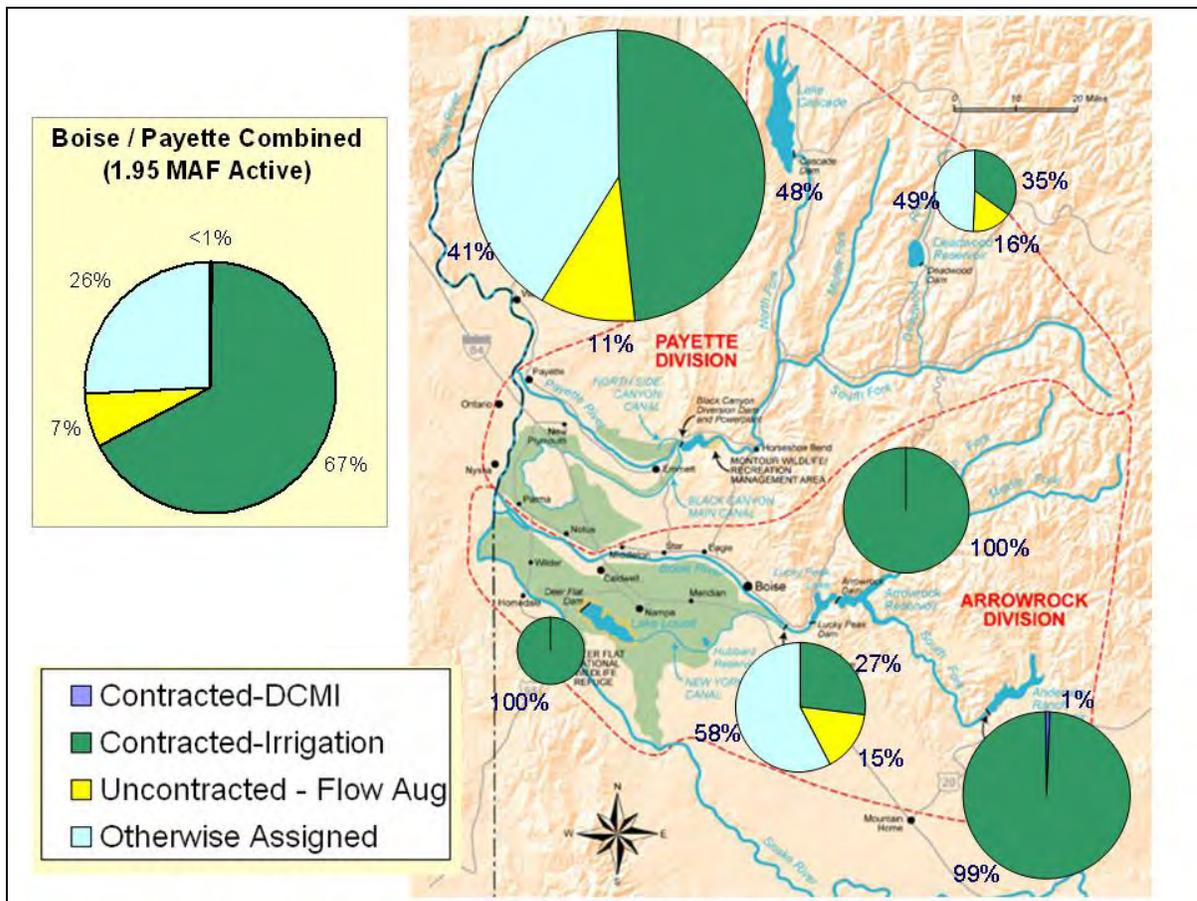
As shown in Figure 1-1, Reclamation's Boise Project includes six reservoirs (Anderson Ranch Reservoir, Arrowrock Reservoir, Lake Lowell, Deadwood Reservoir, Cascade Reservoir, and Black Canyon Reservoir), two diversion dams (Boise River Diversion Dam and Black Canyon Diversion Dam), three Federal powerplants (Anderson Ranch, Boise River Diversion Dam, and Black Canyon), seven pumping plants, 720 miles of main canals, more than 1,300 miles of smaller canals, and 650 miles of drains. There are also other facilities operated by other government agencies (for example, USACE operates Lucky Peak Reservoir for flood control in the lower Boise River valley) and private entities (for example, Idaho Power Company operates a powerhouse at Cascade Reservoir).

For existing Federal facilities, the Secretary of the Interior, under provisions of the Reclamation Act of June 17, 1902 (32 Stat. 388), authorized construction of the original Boise Project (now the Arrowrock Division) on March 27, 1905; Arrowrock Dam on January 6, 1911; and Black Canyon Dam on June 26, 1922. The President, under Section 4 of the Act of June 25, 1910 (36 Stat. 836), and subsection B, Section 4 of the Act of December 5, 1924 (48 Stat. 701), approved Deadwood Dam and Reservoir on October 19, 1928, and Payette Division on December 19, 1935. Finally, the Secretary of the Interior, under the Reclamation Project Act of 1939 (53 Stat. 1187), authorized Anderson Ranch Dam and Reservoir on June 25, 1940. Lucky Peak Dam, constructed by USACE in 1946, was authorized in 1944 under the Flood Control Act of 1944 for flood control and irrigation purposes.

The original authorizing legislation is an important consideration because it states the authorized project purpose and determines the uses of storage water and the limits within which that Federal facility can be operated. The original authorized purpose of each storage facility of the Boise Project is: Arrowrock Dam—irrigation; Anderson Ranch Dam—irrigation, power, flood control, conservation of fish, and recreation; Black Canyon Dam—irrigation and power; Cascade Dam—irrigation and power; Deadwood Dam—irrigation and downstream power; and Deer Flat Dam (Lake Lowell)—irrigation. The Federal Water Project Recreation Act of 1965 (P.L. 89-72) provided further authorities by authorizing recreation and fish and wildlife enhancement as a function at all existing reservoirs.

In summary, irrigation is generally the primary purpose of all authorized Reclamation facilities in the Boise Project, and flood control, recreation, or fish and wildlife enhancement are viewed as project functions or benefits that are national in scope and were generally added through legislation.

The Boise Project can store and distribute 1.95 MAF of water. The Boise Project is operated to meet contract obligations, flood control, and instream resources. Figure 1-4 shows the current allocation of active storage volumes for the entire Boise Project as well as for each facility (storage volume for each facility is shown to scale).



Note: Legend terms are also used in Table 1-1.

Figure 1-4. Current Water Allocation
Source: Reclamation, 1997

Table 1-1 (Reclamation, 1997) provides a summary of the uses, different storage components, and current allocations for each Federal storage reservoir in the Boise Project (including Lucky Peak, which is operated by the USACE). Black Canyon Reservoir is not included in this table because Reclamation does not store water in this run-of-river facility. Although only Federal facilities are included in Table 1-1, several other significant non-Federal reservoirs are present in both basins (for example, Payette Lake, Little Payette Lake, and Little Camas Reservoirs).

In the Boise River basin all three reservoir facilities (Anderson Ranch, Arrowrock, and Lucky Peak) are operated in a coordinated manner, with coordination of irrigation operations with the Water District 63 Watermaster and coordination of flood control operations with the USACE. To the extent possible, as a matter of practice, water is stored high in the system for operational flexibility. During the irrigation season, Lucky Peak is held at or near full pool through the summer, and Arrowrock and Anderson Ranch Reservoirs are drafted for irrigation and uncontracted water is released for flow augmentation. In the fall, Lucky Peak is drafted to meet late-season irrigation needs. Storage water that is not used is credited as carryover into the next year or may be placed into a Boise River rental pool for rental by other water users in the current year.

Table 1-1. Federal Reservoir Use, Storage Component, and Current Allocation Summary

Facility	AUTHORIZATION				ACTIVE STORAGE VOLUME (AF)				
	Irrigation	Flood	Power	TOTAL ACTIVE VOLUME	Contracted-DCM&I	Contracted-Irrigation	Uncontracted - Flow Augmentation ^a	Uncontracted - Otherwise Assigned ^b	
Anderson Ranch	X	X	X (Federal)	423,200	4,800	418,000	-	400	
Arrowrock	X			286,600	-	286,600	-	-	
Lucky Peak	X	X	X (Private)	264,370	-	71,018	40,932	152,420	
Lake Lowell	X			159,400		159,400		-	
Boise Sum				1,133,570	4,800	935,018	40,932	152,820	
Deadwood	X		X (Federal)	161,900	-	56,600	25,400	79,900	
Cascade	X		X (Private)	653,200	-	313,700	69,600	269,900	
Payette Sum				815,100	-	370,300	95,000	349,800	
Boise/Payette Sum				1,948,670	4,800	1,305,318	135,932	502,620	

^a This volume represents uncontracted water that is used for salmon flow augmentation in the summer.

^b This volume represents uncontracted water that is used to meet other uses, such as winter instream flows, dam safety mitigation, and evaporative losses.

NOTE: Black Canyon is not included in this table because it does not store water as a run-of-river facility.

In the Payette River basin, Deadwood and Cascade Reservoirs (as well as the diversion dam at Black Canyon) are also operated in a coordinated manner. Generally, Cascade and Deadwood Reservoirs are operated in parallel to keep the refill capabilities of the two reservoirs equal. Deadwood Dam provides a regulated flow for the powerplant at Black Canyon Diversion Dam and for irrigation in the Payette Division and Emmett Irrigation District. Reclamation attempts to keep Cascade Reservoir at relatively constant levels given the shoreline development and recreational uses of the reservoir. Generally, irrigation demands are met by first releasing water from Deadwood, usually in July and August, and in the late fall season irrigation demand and flow augmentation uses are met first by releases from Cascade Dam (IDWR, 1999).

In addition to surface water supplies, water users in both basins also rely on groundwater. In recent years, increasing population and droughts have led to localized declines in shallow groundwater levels in the Boise River basin. In 2000, 175,000 AF of groundwater was pumped in the Boise River basin, of which 30 percent was used for irrigation (53,000 AF) and 70 percent was used for DCM&I (122,000 AF [IDWR, 2000]). In addition, United Water draws 80 percent of the water it supplies for DCM&I from the deeper regional aquifer (Rhead, 2004b). Analysis suggests that groundwater levels in the deeper aquifer are relatively stable, in contrast with shallow water table levels that appear to be locally declining in areas where residential development is replacing flood-irrigated farmland (IWRRI, 2004).

In the Payette River basin, 52,000 AF of groundwater was diverted for application to agricultural lands, primarily from the lower Payette River valley (IDWR, 1999). Levels have typically remained stable since the 1960s, although marginal groundwater quality has limited the widespread withdrawal of groundwater.

Hydropower is also generated by a number of Federal facilities within both basins. Table 1-2 summarizes existing hydropower development at Federal facilities.

Table 1-2. Existing Federal Facility Hydropower Development

Facility	Location	Capacity (MW)	Owner
Boise River Basin			
Anderson Ranch Dam	South Fork Boise	40	Reclamation
Lucky Peak Dam	Mainstem Boise	103.2	Boise Project Board of Control (Seattle City Light)
Diversion Dam	Lower Boise	3.5	Reclamation
Payette River Basin			
Deadwood	Deadwood River	--	Reclamation (Provides storage for Black Canyon power generation)
Cascade	North Fork Payette	12.8	Idaho Power Company
Horseshoe Bend	Mainstem Payette	9.5	Horseshoe Bend Hydroelectric Company
Black Canyon	Mainstem Payette	10.2	Reclamation

Sources: Reclamation, 1997; IDWR, 1999.

1.3.4 Instream Flows and Flow Augmentation

Some surface water in both basins is stored and released for minimum instream flows and flow augmentation.

IDWR administers the State minimum stream flow program, as authorized by the Idaho Legislature in 1978, to preserve stream flows and lake elevations for public health, safety, and welfare. IDWR defines minimum stream flows as “the amount of flow necessary to preserve desired stream values, including fish and wildlife habitat, aquatic life, navigation and transportation, recreation, water quality, and aesthetic beauty” (IDWR, 2006). In some cases water rights are established to meet minimum stream flow targets. These water rights are approved by the legislature and are held by the IWRB in trust for Idaho citizens. Most of these water rights have relatively recent priority dates and are junior to other more senior water rights in both basins.

In addition to legal minimum stream flow water rights, minimum stream flow targets have also been established and are attempted to be met if water conditions allow; these minimum targets are not protected. Stream flow water rights and stream flow targets in both basins are summarized in Table 1-3.

Table 1-3. Minimum Instream Flows and Targets

	Flow (cfs)	Period	Type (Priority Date)
Boise River Basin			
Downstream from Anderson Ranch (South Fork Boise)	300	Sep 15-Mar 31	Minimum target
	600	Apr 1-whenever higher releases dictated by irrigation demand or flood control	Minimum target
East Fork Montezuma (Montezuma, Middle Fork Boise)	0.1	Year-round	Licensed water right (Nov-96)
Crooked River (Middle Fork Boise)	150	May 1-Jun 30	Licensed water right (Nov-96)
	34	Jul 1-Apr 30	Licensed water right (Nov-96)
Yuba River (Middle Fork Boise)	200	May 1-Jun 30	Licensed water right (Nov-96)
	44	Jul 1-Apr 30	Licensed water right (Nov-96)
North Fork Elk Creek (Mores, Boise)	5	Year-round	Licensed water right (Nov-96)
	230	Jul 1-Apr 30	Licensed water right (Nov-96)
Middle Fork Boise (RM 16.3 to North Fork)	1,000	May 1-Jun 30	Licensed water right (Nov-96)
	230	Jul 1-Apr 30	Licensed water right (Nov-96)
Downstream from Lucky Peak (Glenwood, Lower Boise)	150	Winter	Minimum target

Table 1-3. Minimum Instream Flows and Targets (continued)

	Flow (cfs)	Period	Type (Priority Date)
Payette River Basin			
Downstream from Deadwood (South Fork Payette)	50	Winter	Minimum target
Sawtooth Wilderness to Deadwood River confluence	1,100	Apr 19-Jul 15	Licensed water right (Apr-85)
	212	Jul 16-Apr 18	Licensed water right (Apr-85)
Deadwood to Oxbow	1,100	Apr 15-Aug 31	Licensed water right (Apr-85)
	337	Sep 1-Apr 14	Licensed water right (Apr-85)
Downstream from Deadwood Confluence (South Fork Payette)	700-763	Apr 15-Aug 31	Licensed water right (May-89)
Downstream from Deadwood Confluence to Oxbow Reach (South Fork Payette)	337	Year-round (400 cfs Fri-Sun, Apr 15-Aug 31)	Licensed water right (Apr-85)
Deadwood to Middle Fork Payette	1,100	Apr 15-Aug 31	Licensed water right (Apr-85)
	337	Sep 1-Apr 14	Licensed water right (Apr-85)
Middle Fork Payette to Banks	1,350	Apr 15-Aug 31	Licensed (Apr-85)
	407	Sep 1-Apr 14	Licensed (Apr-85)
Downstream from Cascade (North Fork Payette)	200	Winter	Minimum target, meets Idaho Power natural flow right
North Fork Payette (Cabarton to Smith's Ferry)	1,400	Jun 18-Oct 12	Licensed water right (Dec-87)
	106-294	Oct 13-Mar 15	Licensed water right (Dec-87, Apr-88)
	100-500	March 15-June 17	Licensed water right (Dec-87, Apr-88)
North Fork Payette (Smith's Ferry to Banks)	1,800	May 1-June 30	Licensed water right (Apr-88)
	1,300	July 1-July 31	Licensed water right (Apr-88)
	1,800	Aug 1-Sept 1	Licensed water right (Apr-88)
	400	Sept 2-April 30	Licensed water right (May-89)
Letha (Payette)	150	Year-Round	Minimum target

Since 1992, Reclamation has attempted to provide up to 427,000 AF/year in salmon flow augmentation water to the Lower Snake and Columbia Rivers. Following the acceptance of the Nez Perce Agreement in 2005, the target water salmon flow augmentation volume for Reclamation is 487,000 AF/year. These Snake River basin augmentation flows are derived in part from the Boise Project, and in part from other upper Snake River projects. Augmentation flows are released primarily for juvenile salmon migration between April 20 and August 31, and Reclamation generally assumes the majority of flows are needed in July and August after natural flows recede.

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2. Estimated Water Needs

2.1 Basis and Limits

The focus of this assessment is to identify and assess potential new surface water supply storage opportunities within the Boise and Payette River basins. As defined in Chapter 1, an assessment study is a preliminary study of problems and needs that uses existing data and information to explore conceptual solutions to water resource issues within specific areas.

This chapter relies on available current and projected water use information for the Boise and Payette River basins. The current and projected water use information was initially developed for a 25-year planning horizon. For the purposes of this assessment, following consultations with the SWG, several assumptions were made to extend the projections to a 50-year planning horizon. A 50-year planning horizon was chosen for this assessment because shorter planning horizons would almost certainly be outdated by the time any future storage facility could be designed, permitted, and constructed.

Estimated demand volumes are used in this assessment to define conceptual storage needs. Those storage needs are then used to develop volume criteria to help assess potential storage opportunities. Extending existing water use projections beyond the 25-year planning horizon inherently adds uncertainty to the estimated future demands. However, margins of error associated with future projections are already inherently large in an assessment. Further refinement of these estimated needs would be warranted in subsequent and more detailed appraisal/feasibility analysis.

Three types of water uses were considered in estimating additional demands⁴:

- *Consumptive Uses (DCM&I, Irrigation)*. As defined in Idaho Code § 42-202B, consumptive uses are “that portion of the annual volume of water diverted under a water right that is transpired by growing vegetation, evaporated from soils, converted to nonrecoverable water vapor, incorporated into products, or otherwise does not return to the waters of the State.” In non-legal terms, consumptive uses generally decrease the amount of water available for another use, such as municipal/industrial and/or irrigation uses (some water that is diverted for a consumptive use can be available for another use via return flows and seepage to groundwater).
- *Flood Control Capacity*. Flood control capacity is the storage capacity used to regulate flood inflows to reduce flood damage downstream. Depending on the design and operation of a storage reservoir, this volume may be additive (that is, flood space would need to be added to any storage volume required for consumptive uses), or non-additive (that is, flood space could include storage volume that is also used for consumptive uses).
- *Flow Augmentation*. In this assessment, flow augmentation was also considered when estimating additional demands. Flow augmentation is authorized under the special provisions of Idaho Code § 42-1763B and water released for flow augmentation is not available for other uses.

⁴ Other water uses, such as non-consumptive recreational releases, were not considered at this assessment-level analysis.

These uses are discussed in more detail below. Throughout this discussion, demand projections (and thus estimated additional supply volumes) are presented with associated ranges of uncertainty. Again, ranges of uncertainty reflect the broad and generalized approach inherent in an assessment. Data gaps that contribute to uncertainty are also discussed below.

2.2 Consumptive Uses

As defined in Idaho Code § 42-202B, consumptive uses are “that portion of the annual volume of water diverted under a water right that is transpired by growing vegetation, evaporated from soils, converted to nonrecoverable water vapor, incorporated into products, or otherwise does not return to the waters of the State.” In non-legal terms, consumptive uses generally decrease the amount of water available for another use, such as municipal/industrial and/or irrigation uses (some water that is diverted for a consumptive use can be available for another use via return flows and seepage to groundwater).

2.2.1 DCM&I Uses

DCM&I uses include all uses associated with domestic, commercial, municipal, and industrial uses. Available information used to form the basis of estimated additional DCM&I demands included two primary sources:

- Within the Boise River basin, IDWR (2001) completed a 25-year projection of DCM&I demands in response to concerns about significant population growth. This assessment was completed in partnership with the Community Planning Association of Ada and Canyon Counties (COMPASS) and the U.S. Geological Survey (USGS), and was funded by Reclamation.
- Within the Payette River basin, IDWR (1999) completed a Payette River comprehensive planning document that summarizes 1996 water demands and compared these demands to historic trends.

IDWR (2001) projected future DCM&I demands in the Boise River basin through 2025. These projections suggest that between 76,000 and 96,000 additional AF of water will be needed to accommodate future DCM&I demand projected over a 25-year timeframe.⁵ These increasing water use demands are consistent with United Water Idaho projections that the population in Ada County (representing the eastern portion of the lower Boise River basin) alone might exceed 800,000 by 2050 (UWID, 2002).

The demand projections in the IDWR (2001) report were extended to 2050 based on the increasing trend line from 2015 to 2025. Certainly, extrapolating from previous studies adds uncertainty to the 50-year projections. To address this uncertainty, an error of ± 10 percent was applied.

Within the Payette River basin, projected annual DCM&I water usage in 2025 is estimated to be near 45,200 AF (IDWR, 1999). Population growth trends observed between 1990 and 1996 were used to predict increasing water demand trends through 2050. Although population growth and water use growth are not always proportional, the uncertainty associated with this assumption has only a marginal effect on overall regional water use

⁵ These volume estimates do not incorporate any water conservation measures.

projections because only a small percent of the total DCM&I water use occurs within the Payette River basin. To address uncertainty associated with projecting future water use, an error of ± 10 percent was applied.

Neither of the existing demand projections (IDWR, 2001; IDWR, 1999) incorporated any water savings related to increased conservation. In response to stakeholder concerns that water conservation should not be ignored as a water management tool, a factor for conservation was incorporated into the water demand projections. A detailed conservation plan and analysis is beyond the scope of this assessment study. However, a conservation factor was developed (based on information contained in Appendix C) and incorporated into estimated demand projections for this assessment.

For the purposes of this assessment, it was assumed that the majority of future DCM&I demands would be met using surface water sources. IDWR and Idaho Water Resources Research Institute (IWRRI) continue to conduct studies to determine the condition and yield of the multiple aquifer systems in the Treasure Valley. United Water has estimated that 40,000 AF of additional DCM&I growth in Ada County could be supplied by groundwater from the Boise River basin (Rhead, 2004a). In addition, despite the rural nature of the Payette River basin, the majority of future DCM&I water needs may have to be met with surface water sources because declining water quality in groundwater is an issue (IDWR, 1999).

A summary of how the total estimated future DCM&I surface water needs was calculated is provided in Equation 1.

$$\begin{aligned} \text{Eqn. 1.} \quad & \text{Estimated Additional DCM\&I Supply From Surface Water} = \\ & \text{Minus—Projected Water Demands} \\ & \text{Minus—Conservation Savings} \\ & \text{Minus—Anticipated Additional Groundwater Supply} \\ & \text{Plus or Minus } \pm 10 \text{ percent—Uncertainty Factor} \end{aligned}$$

Projected DCM&I surface water needs for both basins are shown in Figure 2-1.

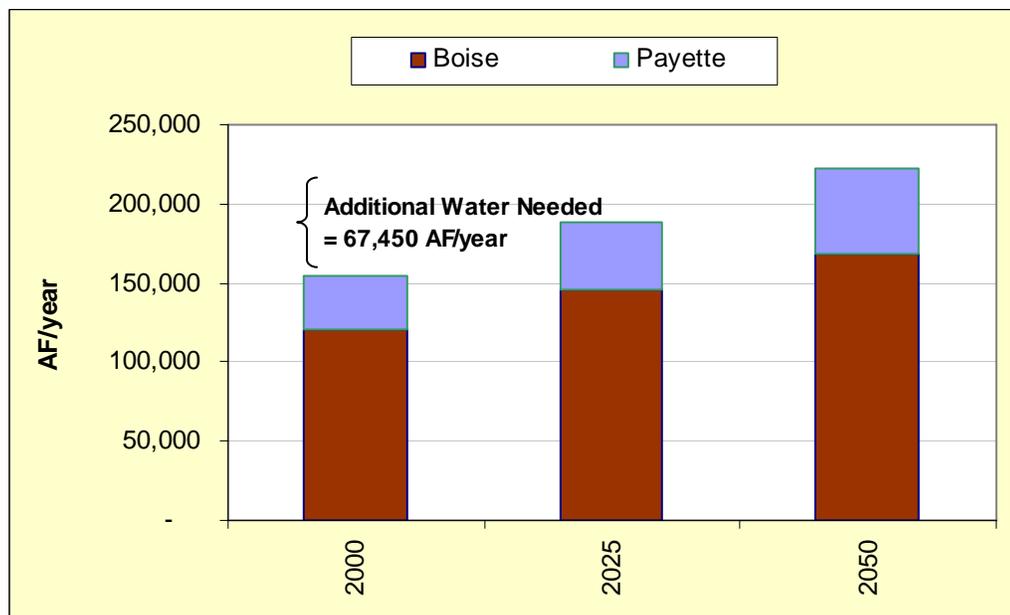


Figure 2-1. Estimated DCM&I Surface Water Needs

Figure 2-1 shows the projected DCM&I surface water needs for both basins over a 50-year planning horizon and takes into consideration conservation savings and anticipated groundwater supply. By 2050, DCM&I needs in both basins might require an additional 67,450 AF of surface water above 2000 levels on an annual basis (as calculated using the elements in Equation 1). Detailed estimates for 2050 are summarized in Table 2-1.

Table 2-1. Estimated Additional DCM&I Surface Water Needs by Basin (at 2050)

Basin	Projected Water Demands above Current Levels	- Conservation Savings	- Volume Supplied by Groundwater	Estimated Additional DCM&I Supply Volume Needed
Boise	124,085	36,760	40,000	47,325
Payette	22,955	2,830	-	20,125
Total	147,040	39,590	40,000	67,450
			-10 percent	60,705
			+10 percent	74,195

NOTE: These values are estimated water needs above current levels. All values are AF/year.

The majority of projected DCM&I growth occurs within the Boise River basin (~47,325 AF), with a smaller projection in the Payette River basin (~20,125 AF). These estimates are conceptual and associated with a level of uncertainty related to simple trend applications and long-term (50-year) planning horizons. To address this uncertainty, an error of ± 10 percent has been applied.

2.2.2 Irrigation Uses

Irrigation uses include both urban/suburban developments and planned communities that rely on irrigation water for landscaping needs, as well as traditional farmlands that rely on irrigation water to grow crops. The Treasure Valley is one of the fastest urbanizing areas in the nation. This urbanization means that agricultural lands are being converted to urban/suburban land uses at a rapid rate. Unpublished data from the Idaho Association of Soil and Conservation Districts (Koberg, 2005) indicates that 10,000 acres of agricultural lands were converted to urban and suburban land uses between 2000 and 2004, most notably to residential developments. This translates to a 2 percent annual land use conversion rate.

The effect of these conversions on consumptive demand for water in the Boise and Payette River basins has not been quantitatively assessed yet. This data gap was addressed using input from local water users and case studies from elsewhere in the arid west that have also been undergoing rapid growth and urbanization.

Within the Boise River basin, since it is projected to experience faster rates of urbanization, the Nampa & Meridian Irrigation District (NMID), delivers irrigation water to approximately 64,000 acres of urban, suburban, and rural lands throughout the lower Boise River basin. In 2006, the Boise Project Board of Control (BPBOC), which is composed predominantly of NMID, provided 2.6 AF/acre to its water users (Idaho Statesman, 2006), which is less than in neighboring arid states (Utah Natural Resources, 2001; Nevada Division of Water Resources,

1999). NMID's experience is that there has been no reduction in water demand for large tracts of developed land that was once irrigated by individual farmers.

In addition to input from local water users such as NMID, other regional case studies were also evaluated. On a statewide basis, Utah and Nevada's water plans assume that an annual loss of agricultural land on the order of 0.2 to 0.3 percent will translate to a 5 to 10 percent reduction in water consumed (Utah Natural Resources, 2001; Nevada Division of Water Resources, 1999). Current water consumption on agricultural lands for these States ranges between 3.0 AF/acre and 4.4 AF/acre.

Within the Payette River basin, agricultural lands are also being converted to urbanized uses, but likely at a much lower rate. The conversion rate has not been quantified in a manner such as the Boise River basin, and whether or not this conversion results in water savings is uncertain. The difference in the Payette River basin is that any need for additional irrigation water may be able to be met by existing storage and instream resources.

Using both local water user input and case studies, for the purposes of this assessment it was assumed that irrigation demand in both basins would remain constant at current levels, with an error of ± 2 percent. This error assumption has a large effect on the overall future water demand because current irrigation uses comprise such a large percentage of total water demand (~90 percent). Given that approximately 2.1 MAF of water is used annually for irrigation in both basins (see Chapter 1), ± 2 percent of this irrigation volume is estimated at 48,235 AF/year. Thus, irrigation water needs might increase or decrease by 48,235 AF/year.

It is important to reiterate that local empirical data on how water consumption might change as land continues to be urbanized are limited. Water consumption related to specific land uses (for example, irrigated agriculture versus urbanized landscaping) is expected to continue to be monitored. Thus, future irrigation water needs are expected to be reevaluated and refined in future appraisal/feasibility analysis.

2.2.3 Summary of Consumptive Uses

As summarized in Table 2-2, the combination of both DCM&I and irrigation demands in both basins brings future consumptive demand estimates in 2050 to between 12,470 and 122,430 AF/year above current levels. Compared to current consumptive use volumes (2.5 MAF, as explained in Chapter 1), this represents an increase of up to 5 percent above current levels over the 50-year planning horizon.

Table 2-2. Summary of Additional Consumptive Demand Volumes

Water Use Type	Minimum	Maximum
Consumptive		
DCM&I (Section 2.2.1)	60,705	74,195
Irrigation (Section 2.2.2)	-48,235	48,235
Total Consumptive Demands	12,470	122,430

NOTE: These values are estimated water needs above current levels. All values are AF/year.

2.3 Flood Control Capacity

Flood control capacity is the storage capacity used to regulate flood inflows to reduce flood damage downstream. Within the Boise River basin, USACE and Reclamation developed a coordinated plan for the operation of the three-dam system in consultation with related downstream diversion and storage facilities. Current releases are managed under a revised manual (USACE, 1985) according to climate pattern, runoff, and irrigation demand. This manual is based on the floodplain management plans in effect at that time (USACE, 1985); these plans are in the process of being updated as development continues to occur within the floodplain and floodway areas surrounding the Boise River.

The beginning and ending of the flood control and refill season (typically from April through July) can vary widely with weather conditions and the water supply (Reclamation, 1997). This period represents a basic management conflict that is managed cooperatively between Reclamation, USACE, and water users: USACE is required to manage space in Lucky Peak to provide a flood control pocket for downstream population centers (notably including the Cities of Boise, Eagle, and Caldwell), while Reclamation and downstream water users rely on the spring runoff period to provide a refill volume that can sustain water calls throughout the dry summer period. Additional dedicated storage volume (either in existing reservoirs or in new facilities) could provide the USACE the ability to protect downstream communities from flooding while the reservoirs could continue to be filled to meet summer water demands.

Although the spring runoff rule curve has not been updated since 1985, USACE developed preliminary estimates of future flood control that might be needed in the Boise River basin. Current hydrological models predict that a 100-year regulated event would sustain significant property damage (USACE, 2005). USACE estimates that the additional dedicated space required to reduce flood risk is between 50,000 and 200,000 AF (in concert with an updated floodplain management plan) in the Boise River basin (USACE, 2005). Thus, the higher the volume of flood control storage, the lower the flood risk.

Reclamation manages two storage facilities that provide flood control in the Payette River basin (Deadwood and Cascade Reservoirs) and flood flow releases are coordinated according to an informal agreement using 1996 flood control rule curves (Reclamation, 1997). Because 65 percent of the basin is located below these two control facilities (IDWR, 1999), flood conditions at, and downstream from, Horseshoe Bend can only be controlled to a limited extent by upper watershed facilities (that is, low elevation runoff cannot be stored or controlled by either facility). USACE constructed an extensive levee system downstream from Horseshoe Bend, but these levees are considered temporary and unsuitable for protection for large flood events (IDWR, 1999). Updating flood control requirements for the Payette River basin would need to be considered in future phases of water storage planning. It is presumed that any additional flood storage in the Payette River basin would be beneficial to those communities.

A summary of target flood capacity for the Boise River basin (again, no information is available for the Payette River basin) is summarized in Table 2-3. Depending on the design and operation of a potential new storage reservoir, flood control capacity may be additive (that is, the flood space represents an independent need that would be added to any storage volume required for consumptive uses), or non-additive (that is, would rely on optimizing reservoir operations so that the flood space would also be used for consumptive uses). This assessment

assumes that flood control is additive; certainly, this assumption could be refined in future appraisal/feasibility analysis.

Table 2-3. Summary of Target Flood Control Capacity

Water Use Type	Minimum	Maximum
Flood Control Capacity	50,000	200,000

NOTE: Target flood control capacity for the Payette River basin is unknown. All values are AF/year.

2.4 Flow Augmentation

In this assessment, flow augmentation was also considered when estimating additional demands. Flow augmentation is authorized under the special provisions of Idaho Code § 42-1763B and water released for flow augmentation is not available for other uses. Flow augmentation releases can also include benefits related to water quality or recreation.

Since 1992, Reclamation has attempted to provide a quantity of water up to 427,000 AF/year in salmon flow augmentation to the lower Snake and Columbia Rivers. Following the acceptance of the Nez Perce Agreement in 2005, the target volume for Reclamation is 487,000 AF/year. This water comes from multiple sources throughout the upper Snake, Boise, and Payette River basins. Flows are released primarily for juvenile salmon migration between April 20 and August 31, and Reclamation generally assumes the majority of flows would be needed in July and August after natural flows recede and the beginning of releases to meet irrigation calls.

The Boise and Payette River basins represent an important component of the overall 487,000 AF target volume.

At a conceptual level, it may be desirable and beneficial to secure additional water from these basins for flow augmentation in dry years. For the purposes of this assessment, flow augmentation targets reflect Reclamation's desire to secure the ability to provide 200,000 AF under all climate conditions. It was estimated that a minimum of 64,000 AF could achieve this goal. This number represents the difference between the volume that is typically provided during wet years (200,000 AF) and the amount of water that is typically provided in dry years (136,000 AF). Certainly, this projected water need is a "placeholder" and should continue to be evaluated and assessed in subsequent, more detailed studies.

Table 2-4. Summary of Flow Augmentation Volumes

Water Use Type	Minimum	Maximum
Flow Augmentation Flow Volumes	0	64,000

NOTE: All values are AF/year.

2.5 Summary of Estimated Water Needs

The future demand volumes presented in this chapter represent long-range planning-level estimates that need to be refined in subsequent appraisal/feasibility analysis. Table 2-5 presents a summary of volumes by use.

Depending on the design and operation of a potential new storage reservoir, flood control capacity may be additive (that is, flood space represents an independent need that would be added to any storage volume required for consumptive uses), or non-additive (that is, would rely on optimizing reservoir operations so that flood space would also be used for consumptive uses). This assessment assumes that flood control is additive; certainly, this assumption could be refined in future appraisal/feasibility analysis.

Table 2-5. Summary of Estimated Additional Water Needs

Water Use Type	Minimum	Maximum
Consumptive (DCM&I, Irrigation) (Table 2-2)	12,470	122,430
Flow Augmentation (Table 2-4)	0	64,000
Subtotal	12,470	186,430
Flood Control Capacity (Table 2-3)	50,000	200,000
Total Estimated Additional Storage Volumes	62,470	386,430

NOTE: See Tables 2-2, 2-3, and 2-4 for more information on how these volumes were derived. Flood control reflects information from the Boise River basin only; projected flood control capacity for the Payette River basin is not available. All values are AF/year.

As explained in the beginning of this chapter, estimated demand volumes are used in this assessment to define conceptual storage needs. Those storage needs are then used to develop volume criteria in the next chapter to help assess potential storage opportunities.

This assessment suggests that between 62,470 and 386,430 AF/year of additional surface water storage might be needed between both basins. The high-end estimate reflects the assumption that the maximum total consumptive and flow augmentation uses (186,430 AF) would be additive with flood control capacity (that is, these needs would be independently managed), and the maximum volume of flood control storage (200,000 AF) would be added to the other uses to determine the maximum sizing (386,430 AF) of a storage facility (or facilities).

Again, these volumes represent estimates that rely on uncertainty and data gaps and would need to be refined in potential appraisal/feasibility analysis.

The relationship between where the water will be needed, and when future demands will need to be met, will ultimately control the decision of how much water can or should be supplied by surface water facilities. For example, in the Boise River basin, flood control capacity could be coupled with additional storage, which could then be filled following flood season to provide water for DCM&I, irrigation, and/or flow augmentation needs. Alternatively, in the Payette River basin, flood control capacity high in the system could be offset with additional storage at existing facilities to ultimately provide additional DCM&I or flow augmentation. Because Reclamation operates their facilities in a coordinated manner, a reasonable amount of water storage operational flexibility is possible using existing and potential new storage facilities.

3. Storage Site Identification and Screening

The focus of this assessment is to identify and assess potential new surface water supply storage opportunities within the Boise and Payette River basins. Because historic information was available on more than 200 sites, the comprehensive list of potential storage sites was narrowed down to a manageable number for more detailed evaluation in three steps:

1. Compile and summarize existing written documents via a Literature Report. Query stakeholders on other non-published pertinent information. This information-gathering step is summarized in Section 3.1.
2. Screen initial list of 200+ sites to a smaller list of 56 potential sites. This screening step is summarized in Section 3.2.
3. Rank smaller list of potential sites to determine areas that best represent opportunities for new storage. This ranking step is summarized in Section 3.3.

The process and results of each of these steps are described below.

3.1 Summary of Existing Information

A comprehensive literature review was conducted to assemble the most complete list of historic studies and reports that have provided recommendations for potential water storage opportunities within the Boise and Payette River basins. The majority of documents assembled for the review were provided by Reclamation (Snake River Area Office); USACE (Walla Walla District Office); and IDWR (Boise, Idaho Office Headquarters). Other materials included within the review were obtained from libraries and various private entities.

The literature review assembled 53 documents that dated back to 1938 and were produced by a wide range of entities and organizations. These documents examined a broad range of aspects and potential opportunities for water development within the Boise and Payette River basins. As discussed in Chapter 1, a comprehensive water storage appraisal study conducted by Reclamation and USACE (1994) provided one of the more extensive documents that addressed water supply and storage. The literature review was compiled into a separate report entitled *Boise and Payette River Basins: Literature Report for Potential Water Storage Opportunities* (Literature Report). This report can be found in Appendix D.

The Literature Report provides a summary of the potential on-stream, off-stream, existing, and unclassified water development facilities for more than 200 sites. The Literature Report also includes a detailed bibliography and an evaluation of the quality and quantity of information contained within each document reviewed for this assessment.

The documentation for each facility included: 1) the basin for the proposed site; 2) subbasin; 3) the specific location (where available); 4) type of facility; 5) water source; 6) capacity (or range of capacities); 7) source document(s); 8) an estimate of the cost at the time of the report (where available); 9) reasons for not constructing the facility at the time of the report; and 10) other details about the facility (where available).

In addition to reviewing available documentation and literature, members of the SWG were also encouraged to provide any additional pertinent information that may have been unpublished or otherwise known. Members of the SWG identified a number of water storage opportunities, some of which did not fit into the defined scope of this assessment; such as non-physical or administrative water storage opportunities. Other SWG ideas outside the scope of study included water conservation (including upgrading delivery canals), modifying existing reservoir minimum pool operations (for example, at Cascade Reservoir), and expanding authorization at existing storage facilities to include other water uses. These opportunities are outside the scope of this assessment. However, these opportunities could also be pursued by others or considered in separate or future Reclamation studies. Feedback from the SWG is documented in meeting summary notes contained in Appendix B.

Table 3-1 provides a consolidated summary of the sites by type and basin and Figure 3-1 shows the site locations. Table 3-2 and Table 3-3 list each of the sites identified in the literature within the Boise and Payette River basins. These tables include a summary of pertinent information regarding published facility type (for example, on-stream versus off-stream) and published storage capacity. Appendix D provides a description, where available, of the type of dam for new storage sites or the various operational supporting facilities necessary for the site. Appendix D also includes existing facilities upgrade (i.e., retrofitting) recommendations from the literature review.

Tables 3-2 and 3-3 also present the results of the screening process, which are discussed in more detail in Section 3.2.

Table 3-1. Summary of Identified Physical / Mechanical Water Storage Opportunities

Site Type/Source	Definition	Total	Total by Basin	Capacity Range (AF)
On-stream	Any new site within a drainage-way that has sufficient year-round flow to fill at a specified frequency from waters within the drainage.	53	Boise – 29	12,000 to 490,000
			Payette – 24	8,000 to 2,400,000
Off-stream	Any new site located on or adjacent to a drainage-way and requires intra- or transbasin sources to fill at a specified frequency.	94	Boise – 50	21,000 to 1,500,000
			Payette – 37	24,000 to 2,600,000
Unclassified	New sites that had no assigned facility type.	69	Boise – 24	NA
			Payette – 45	13,000 to 20,000
Existing	Presently developed sites that could be retrofitted.	14	Boise – 6	4,060 to 35,000
			Payette – 8	6,300 to 180,000
TOTAL		223		

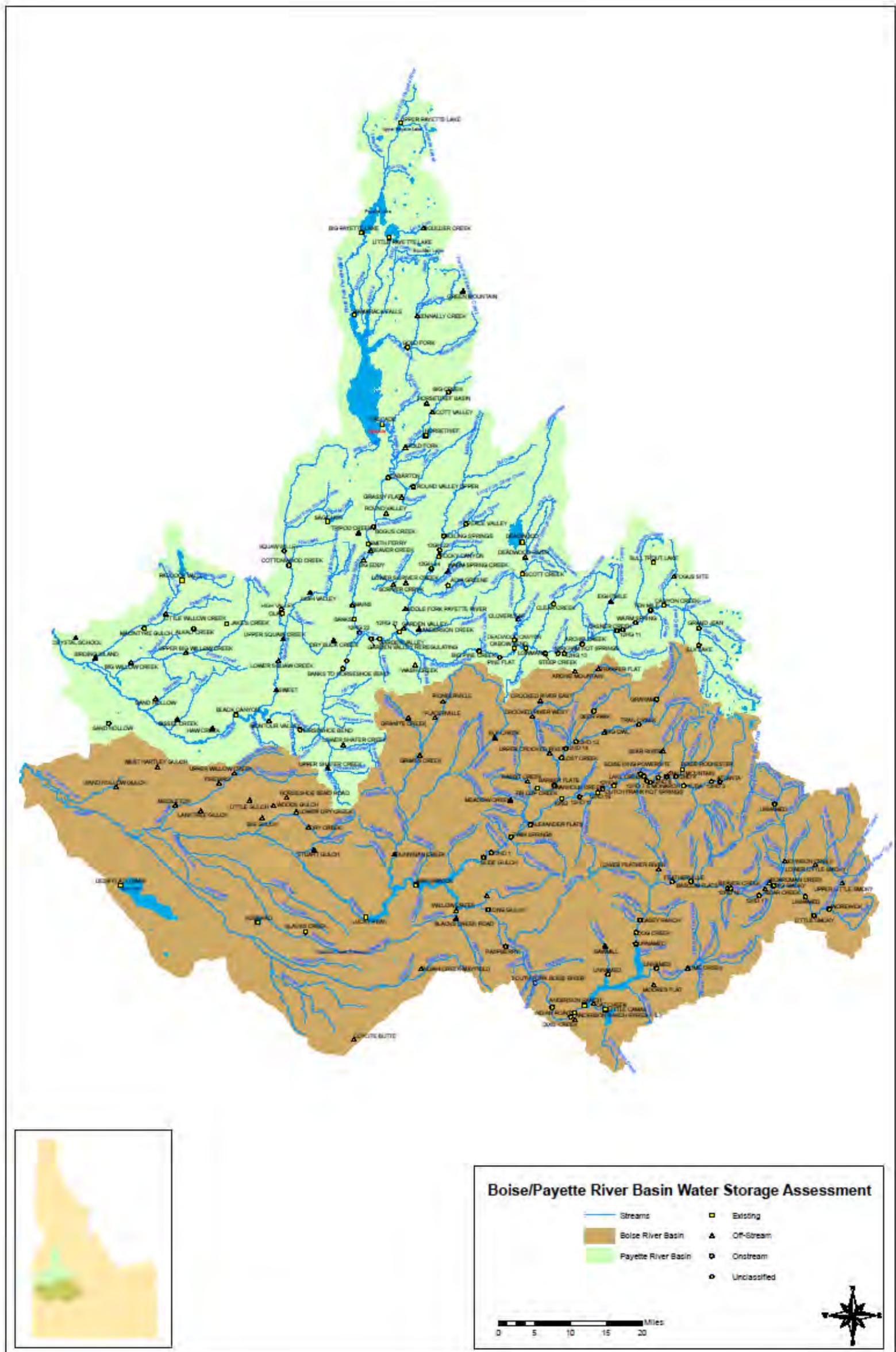


Figure 3-1. Comprehensive Map of New and Existing Potential Water Storage Sites

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Table 3-2. Summary of Identified Sites and Screening Process for Boise River Basin

Site Name	Step 1: Literature Information Summary					Step 2: Screening Results				Step 3: Ranking Recommendation		
	On-stream	Off-stream	Existing	Unclassified	Published Storage Potential (AF)	Hydrology	Special Designation	ESA/ Bull Trout	Minimum Size	Carry Forward?	Eliminate?	Notes
Alexander Flats	X				15-50,000	■	■	■	■	✓		
Anderson Ranch			X		29,000	■	■	■	?	✓		Retained as a retrofit option.
Anderson Ranch Rereg No 1				X	NA	■	■	■	?		✓	Eliminated because multiple potential retrofitting options carried forward under Anderson Ranch.
Archie Mountain		X			49,000	■	■	■	■		✓	Eliminated due to inadequate facility size.
Arrowrock			X		6,300	■	■	■	?	✓		Retained as a retrofit option.
Atlanta				X	NA	■	■	■	?		✓	Eliminated due to critical bull trout habitat.
Bald Mountain	X				NA	■	■	■	?		✓	Eliminated due to critical bull trout habitat.
Barber Flats	X				76,000	■	■	■	■	✓		
Bascum Flats	X				90-122,000	■	■	■	■		✓	Eliminated due to critical bull trout habitat.
Bear Creek		X			NA	■	■	■	?	✓		Eliminated due to critical bull trout habitat.
Bear River		X			93-95,000	■	■	■	■	✓		Eliminated due to critical bull trout habitat.
Beaver Creek	X				NA	■	■	■	?	✓		Eliminated due to critical bull trout habitat.
Big Gulch		X			36,000	■	■	■	■	✓		Eliminated due to inadequate facility size.
Big Owl		X			NA	■	■	■	?	✓		Eliminated due to Natural designation and critical bull trout habitat.
Big Smoky	X				125-258,000	■	■	■	■	✓		Eliminated due to critical bull trout habitat.
Blacks Creek	X				NA	■	■	■	■	✓		Eliminated due to poor hydrology and inadequate facility size.
Blacks Creek Road		X			44,000	■	■	■	■	✓		Eliminated due to inadequate facility size.
Blacks Lake				X	NA	■	■	■	?	✓		Eliminated because only limited information available on potential site.
Boardman Creek		X			NA	■	■	■	?	✓		Eliminated due to critical bull trout habitat.
Boise King Powersite				X	NA	■	■	■	?	✓		Eliminated due to critical bull trout habitat.
Boise-Rochester	X				NA	■	■	■	?	✓		Eliminated due to critical bull trout habitat.
Casey Ranch	X				270,000	■	■	■	■	✓		
Cat Creek		X			93-95,000	■	■	■	■	✓		
Chadre		X			24,000	?	■	■	■		✓	Eliminated due to inadequate facility size.
Conswello		X			56,000	?	■	■	■		✓	Eliminated because only limited information (including site location) available.
Coyote Butte		X			260,000	■	■	■	■	✓		
Crooked River East		X			37,000	■	■	■	■		✓	Eliminated due to critical bull trout habitat and inadequate facility size.
Crooked River West		X			119,000	■	■	■	?	✓		Eliminated due to critical bull trout habitat.
Deer Flat Lower			X		NA	■	■	■	?	✓		Eliminated due to poor hydrology.
Deer Park	X				NA	■	■	■	?	✓		Eliminated due to poor hydrology and critical bull trout habitat.
Dixie Creek		X			46-47,000	■	■	■	■	✓		Eliminated due to Natural designation and critical bull trout habitat.
Dog Creek	X				165,000	■	■	■	■	✓		Eliminated because nearby Casey Ranch carried forward.
Dry Creek		X			53-220,000	■	■	■	■	✓		
Dunnigan Creek		X			240,000	■	■	■	■	✓		
Dutch Frank Hot Springs	X				NA	■	■	■	?	✓		Eliminated due to critical bull trout habitat.
Elk Creek		X			41,000	■	■	■	■	✓		Eliminated due to inadequate facility size.
Featherville	X				34,000	■	■	■	■	✓		Eliminated due to inadequate facility size.
Firebird		X			67,000	■	■	■	■	✓		
Graham	X				44,000	■	■	■	■	✓		Eliminated due to poor hydrology, critical bull trout habitat, and inadequate facility size.
Granite Creek		X			48,000	■	■	■	■	✓		Eliminated due to inadequate facility size.
Grimes Creek		X			5-1,500,000	■	■	■	■	✓		
GWP 13				X	NA	?	■	■	?	✓		Eliminated because only limited information (including site location) available.
Horseshoe Bend Road		X			100,000	■	■	■	■	✓		Eliminated because nearby Dry Creek carried forward.
Hubbard			X		4,060	?	■	■	■	✓		Eliminated due to inadequate facility size.
Indian Creek-Mayfield		X			52,000	■	■	■	■	✓		
Indian Point	X				20,000	■	■	■	■	✓		Eliminated due to inadequate facility size.
Johnson Creek	X				180,000	■	■	■	■	✓		Eliminated due to critical bull trout habitat.
King	X				56,000	■	■	■	■	✓		Eliminated due to critical bull trout habitat.
Krall Mountain		X			121,000	■	■	■	■	✓		
Lake Creek	X				NA	■	■	■	?	✓		Eliminated due to critical bull trout habitat.
Lanktree Gulch		X			22,000	■	■	■	■	✓		Eliminated due to inadequate facility size.
Lime Creek		X			NA	■	■	■	?	✓		Eliminated due to poor hydrology and Natural designation.
Little Camas			X		NA	■	■	■	?	✓		Eliminated due to poor hydrology.
Little Gulch		X			NA	■	■	■	■	✓		Eliminated due to inadequate facility size.

Table 3-2. Summary of Identified Sites and Screening Process for Boise River Basin (continued)

Site Name	Step 1: Literature Information Summary				Step 2: Screening Results				Step 3: Ranking Recommendation			Notes
	On-stream	Off-stream	Existing	Unclassified	Published Storage Potential (AF)	Hydrology	Special Designation	ESA/ Bull Trout	Minimum Size	Carry Forward?	Eliminate?	
Little Smoky	X				12,000						✓	Eliminated due to critical bull trout habitat and inadequate facility size.
Long Gulch	X				27,000						✓	Eliminated due to Natural designation and inadequate facility size.
Lost Creek	X				NA				?		✓	Eliminated due to critical bull trout habitat.
Lower Crooked River		X			250,000	?					✓	Eliminated because only limited information (including site location) available.
Lower Dry Creek		X			43,000						✓	Eliminated due to inadequate facility size.
Lower Feather River		X			24,000						✓	Eliminated due to inadequate facility size.
Lower Little Smoky Creek		X			76,000	?					✓	Eliminated because only limited information (including site location) available.
Lucky Peak			X		See notes.				?	✓		Retrofit option carried forward with Arrowrock; storage potential of 35,000 AF represents a flood control pocket.
Magello		X			27,000	?					✓	Eliminated due to inadequate facility size.
Meadow Creek		X			44,000						✓	Eliminated due to inadequate facility size.
Middleton		X			29,000						✓	Eliminated due to inadequate facility size.
Monarch	X				NA				?		✓	Eliminated due to critical bull trout habitat.
Moores Flat		X			52-55,000					✓		
North Fork Boise River				X	NA	?					✓	Eliminated because only limited information (including site location) available.
Pioneerville		X			58,000					✓		
Placerville		X			21,000						✓	Eliminated due to inadequate facility size.
Rabbit Creek		X			152,000					✓		
Raspberry	X				145-160,000						✓	Eliminated due to poor hydrology.
Sand Hollow Gulch		X			39-42,000						✓	Eliminated due to poor hydrology and inadequate facility size.
Sawmill		X			NA				?		✓	Eliminated due to poor hydrology.
Sebree		X			30,000						✓	Eliminated due to inadequate facility size.
Slide Gulch	X				NA				?		✓	Eliminated because only limited information available on potential site.
South Fork Boise River	X				113,000					✓		
Stuart Gulch		X			37,000						✓	Eliminated due to inadequate facility size.
Swanholm Creek	X				NA				?		✓	Eliminated due to critical bull trout habitat.
Trail Creek				X	NA				?		✓	Eliminated due to Natural designation and critical bull trout habitat.
Trapper Flat		X			178,000						✓	Eliminated due to critical bull trout habitat.
Trinity Mountain		X			104,000	?					✓	Eliminated because only limited information (including site location) available.
Twin Springs	X				170-490,000					✓		
Unnamed				X	NA				?		✓	Eliminated due to poor hydrology.
Unnamed				X	NA				?		✓	Eliminated because only limited information available on potential site.
Unnamed				X	NA				?		✓	Eliminated because only limited information available on potential site.
Unnamed				X	NA				?		✓	Eliminated due to critical bull trout habitat.
Unnamed				X	NA				?		✓	Eliminated due to poor hydrology.
Upper Crooked River		X			49,000						✓	Eliminated due to critical bull trout habitat and inadequate facility size.
Upper Feather River		X			70,000	?					✓	Eliminated because only limited information (including site location) available.
Upper Little Smoky Creek		X			87,000	?					✓	Eliminated because only limited information (including site location) available.
Upper Willow Creek		X			31,000						✓	Eliminated due to inadequate facility size.
West Hartley Gulch		X			31,000						✓	Eliminated due to inadequate facility size.
Willow Creek		X			46,000						✓	Eliminated due to inadequate facility size.
Woods Gulch		X			26,000						✓	Eliminated due to inadequate facility size.
Worewick	X				12,000						✓	Eliminated due to critical bull trout habitat and inadequate facility size.
Yuba	X				90,000						✓	Eliminated due to poor hydrology.
12HD 1				X	NA				?		✓	Consolidated with nearby site.
12HD 3				X	NA				?		✓	Eliminated due to critical bull trout habitat.
12HD 4				X	NA				?		✓	Eliminated due to critical bull trout habitat.
12HD 6				X	NA				?		✓	Eliminated due to critical bull trout habitat.
12HD 7				X	NA				?		✓	Eliminated due to critical bull trout habitat.
12HD 9				X	NA				?		✓	Eliminated due to critical bull trout habitat.
12HD 10				X	NA				?		✓	Eliminated due to critical bull trout habitat.
12HD 11				X	NA				?		✓	Eliminated due to critical bull trout habitat.
12HD 13				X	NA				?		✓	Eliminated due to critical bull trout habitat.
12HD 14				X	NA				?		✓	Eliminated due to critical bull trout habitat.

Table 3-2. Summary of Identified Sites and Screening Process for Boise River Basin (continued)

Site Name	Step 1: Literature Information Summary				Published Storage Potential (AF)	Step 2: Screening Results				Step 3: Ranking Recommendation		Notes
	On-stream	Off-stream	Existing	Unclassified		Hydrology	Special Designation	ESA/ Bull Trout	Minimum Size	Carry Forward?	Eliminate?	
12HD 17				X	NA				?		✓	Eliminated due to critical bull trout habitat.
12HD 18				X	NA				?		✓	Eliminated due to critical bull trout habitat.
SUM	29	50	6	24	--	--	--	--	--	19	90	--

Hydrology		Will Not Fill 50% of the Time
		Will Fill 50% of the Time or Off-Stream Site
		Will Fill 80% of the Time
	?	Site Location Unknown
Special Designation		Federal Protection (Wilderness Area) and State-Protected Natural Streams
		State Protected Recreational Streams and Proposed Wild and Scenic
		No Designations
ESA/ Bull Trout		Existing Populations of Bull Trout
		Proposed Habitat, Migratory Habitat, or Populations Unknown
		No Known Populations
Minimum Size		< 50,000 AF
		> 50,000 AF
	?	Size Unknown or Not Applicable

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Table 3-3. Summary of Identified Sites and Screening Process for Payette River Basin

Site Name	Step 1: Literature Information Summary				Published Storage Potential (AF)	Step 2: Screening Results				Step 3: Ranking Recommendation		Notes
	On-stream	Off-stream	Existing	Unclassified		Hydrology	Special Designation	ESA/ Bull Trout	Minimum Size	Carry Forward?	Eliminate?	
Alkali Creek	X				NA	■	■	■	?		✓	Eliminated due to poor hydrology.
Alva Greene				X	NA	■	■	■	?		✓	Eliminated due to poor hydrology.
Anderson Creek		X			51,000	■	■	■	■	✓		
Archie Creek	X				140,000	■	■	■	■	✓		
Banks				X	NA	■	■	■	?		✓	Eliminated because only limited information available.
Banks Lower				X	NA	?	■	■	?		✓	Eliminated because only limited information (including site location) available.
Banks to Horseshoe Bend				X	NA	■	■	■	?		✓	Eliminated because only limited information available.
Beaver Creek		X			NA	■	■	■	?		✓	Eliminated because only limited information available.
Big Creek		X			400,000	■	■	■	■		✓	Eliminated due to poor hydrology.
Big Creek				X	20,000	■	■	■	■		✓	Eliminated due to poor hydrology and inadequate facility size.
Big Eddy				X	NA	■	■	■	?		✓	Eliminated because only limited information available.
Big Falls				X	NA	?	■	■	?		✓	Eliminated because only limited information (including site location) available.
Big Pine Creek	X				110,000	■	■	■	■	✓		
Big Payette Lake			X		30,000	■	■	■	?	✓		
Big Willow Creek		X			310-313,000	■	■	■	■	✓		
Birding Island		X			175,000	■	■	■	■	✓		
Bissel Creek		X			153,500-200,000	■	■	■	■	✓		
Black Bear				X	NA	?	■	■	?		✓	Eliminated because only limited information (including site location) available.
Black Canyon			X		180,000	■	■	■	■	✓		
Bogus Creek	X				33,000	■	■	■	■		✓	Eliminated due to inadequate facility size.
Boiling Springs	X				70,000	■	■	■	■	✓		
Boulder Creek		X			93,000	■	■	■	■		✓	Eliminated due to poor hydrology.
Box Creek				X	NA	?	■	■	?		✓	Eliminated because only limited information (including site location) available.
Browns Pond		X			92,000	?	■	■	■		✓	Eliminated because only limited information available on potential site.
Brush Creek				X	NA	?	■	■	?		✓	Eliminated because only limited information (including site location) available.
Bull Trout Lake	X				NA	■	■	■	■		✓	Eliminated due to poor hydrology, critical bull trout habitat, and inadequate facility size.
Cabarton	X				66-1,400,000	■	■	■	■	✓		
Canyon Creek	X				33,000	■	■	■	■		✓	Eliminated due to poor hydrology and inadequate facility size.
Cascade			X		50,000	■	■	■	■	✓		
Casner	X				142,000	■	■	■	■		✓	Eliminated due to critical bull trout habitat.
Clear Creek				X	NA	■	■	■	?		✓	Eliminated due to poor hydrology.
Cloverleaf		X			NA	■	■	■	?		✓	Eliminated because only limited information (including site location) available.
Cottonwood Creek	X				50,000	■	■	■	■	✓		
Crystal School		X			91,000	■	■	■	■		✓	Eliminated due to poor hydrology.
Dead Horse Creek				X	NA	?	■	■	?		✓	Eliminated because only limited information (including site location) available.
Deadwood Canyon				X	NA	■	■	■	?	✓		
Deadwood Reservoir			X		NA	■	■	■	?		✓	Eliminated due to critical bull trout habitat.
Deadwood River				X	NA	■	■	■	?		✓	Eliminated due to critical bull trout habitat.
Deer Creek				X	NA	?	■	■	?		✓	Eliminated because only limited information (including site location) available.
Dry Buck Creek		X			380,000	■	■	■	■	✓		
Eightmile				X	NA	■	■	■	?		✓	Eliminated due to poor hydrology and critical bull trout habitat.
Elk Lake				X	NA	■	■	■	?		✓	Eliminated due to Natural designation and critical bull trout habitat.
Fall Creek				X	NA	?	■	■	?		✓	Eliminated because only limited information (including site location) available.
Ferncroft				X	NA	?	■	■	?		✓	Eliminated because only limited information (including site location) available.
Fisher Creek				X	NA	?	■	■	?		✓	Eliminated because only limited information (including site location) available.
Fogus Site				X	NA	■	■	■	?		✓	Eliminated due to poor hydrology and critical bull trout habitat.
Garden Valley	X				1,330-2,400,000	■	■	■	■		✓	Eliminated due to poor hydrology.
Garden Valley		X			576,000	■	■	■	■		✓	Eliminated due to poor hydrology.
Garden Valley Reregulating	X				8,000	■	■	■	■		✓	Eliminated due to inadequate facility size.

Table 3-3. Summary of Identified Sites and Screening Process for Payette River Basin (continued)

Site Name	Step 1: Literature Information Summary					Step 2: Screening Results				Step 3: Ranking Recommendation		
	On-stream	Off-stream	Existing	Unclassified	Published Storage Potential (AF)	Hydrology	Special Designation	ESA/ Bull Trout	Minimum Size	Carry Forward?	Eliminate?	Notes
Gold Fork	X				80,000	■	■	■	■	✓		
Gold Fork		X			930,000	■	■	■	■	✓		
Grand Jean	X				88-90,000	■	■	■	■		✓	Eliminated due to critical bull trout habitat.
Grassy Flat		X			32,000	■	■	■	■		✓	Eliminated due to inadequate facility size.
Green Mountain		X			24,000	■	■	■	■		✓	Eliminated due to inadequate facility size.
Grimes Pass				X	NA	?	■	■	?		✓	Eliminated because only limited information (including site location) available.
Haw Creek		X			33-35,000	■	■	■	■		✓	Eliminated due to inadequate facility size.
High Valley		X			1,760,000	■	■	■	■	✓		
High Valley				X	NA	■	■	■	?		✓	Eliminated because only limited information (including site location) available.
Horseshoe Bend	X				480,000	■	■	■	■	✓		
Horsethief		X			75,000	■	■	■	■		✓	Eliminated due to poor hydrology.
Horsethief Basin			X		NA	■	■	■	?		✓	Eliminated due to poor hydrology.
Jake's Creek				X	NA	■	■	■	?		✓	Eliminated due to poor hydrology.
Jug Creek				X	NA	?	■	■	?		✓	Eliminated because only limited information (including site location) available.
Kennally Creek		X			330-351,000	■	■	■	■		✓	Eliminated due to poor hydrology.
Kirkham Hot Springs				X	NA	■	■	■	?		✓	Eliminated because only limited information (including site location) available.
Little Payette Lake			X		16,500	■	■	■	■	✓		
Little Willow Creek		X			85,000	■	■	■	■	✓		
Louie Creek				X	NA	?	■	■	?		✓	Eliminated because only limited information (including site location) available.
Lower Scriver Creek		X			44,000	■	■	■	■		✓	Eliminated due to inadequate facility size.
Lower Shafer Creek		X			34,000	■	■	■	■		✓	Eliminated due to inadequate facility size.
Lower Squaw Creek		X			550,000	■	■	■	■	✓		
Lowman				X	NA	■	■	■	?		✓	Eliminated because only limited information (including site location) available.
Macintyre Gulch	X				NA	■	■	■	■		✓	Eliminated due to poor hydrology and inadequate facility size.
Mains				X	NA	■	■	■	?		✓	Eliminated because only limited information (including site location) available.
Middle Fork Payette River		X			1,600,000	■	■	■	■	✓		
Montour Valley	X				32,000	■	■	■	■		✓	Eliminated due to inadequate facility size.
North Fork				X	NA	?	■	■	?		✓	Eliminated because only limited information (including site location) available.
Ola	X				50-93,000	■	■	■	■	✓		
Oxbow Bend	X				60,000	■	■	■	■	✓		
Paddock Valley			X		6,300	■	■	■	?	✓		Retained as retrofit option despite low refill potential.
Peace Valley				X	13,000	■	■	■	■		✓	Eliminated due to poor hydrology and inadequate facility size.
Pidgeon Flat		X			490,000	?	■	■	■		✓	Eliminated because only limited information available on potential site.
Pine Flat				X	NA	■	■	■	?		✓	Eliminated because only limited information (including site location) available.
Rocky Canyon	X				23,000	■	■	■	■		✓	Eliminated due to inadequate facility size.
Round Valley		X			430,000	■	■	■	■	✓		
Round Valley Upper				X	NA	?	■	■	?		✓	Eliminated because only limited information (including site location) available.
Sand Hollow	X				39,000	■	■	■	■		✓	Eliminated due to poor hydrology and inadequate facility size.
Sand Hollow		X			68-145,000	■	■	■	■	✓		
Scott Creek				X	NA	■	■	■	?		✓	Eliminated due to critical bull trout habitat.
Scott Valley	X				18,000	?	■	■	■		✓	Eliminated due to inadequate facility size.
Scott Valley		X			131,000	■	■	■	■		✓	Eliminated due to poor hydrology.
Scriver Creek		X			NA	■	■	■	?	✓		
Shafer Creek				X	NA	?	■	■	?		✓	Eliminated because only limited information (including site location) available.
Slick Rock		X			35,000	?	■	■	■		✓	Eliminated due to inadequate facility size.
Smith Ferry	X				95,000	■	■	■	■	✓		
Squaw Valley				X	NA	■	■	■	?		✓	Eliminated because only limited information (including site location) available.
Steep Creek				X	NA	■	■	■	?		✓	Eliminated because only limited information (including site location) available.
Sweet		X			148,000	■	■	■	■		✓	
Tamarack Falls	X				20,000	■	■	■	■		✓	Eliminated due to inadequate facility size.
Ten Mile				X	NA	■	■	■	?		✓	Eliminated due to critical bull trout habitat.
Tripod Creek		X			54-57,000	■	■	■	■	✓		

Table 3-3. Summary of Identified Sites and Screening Process for Payette River Basin (continued)

Site Name	Step 1: Literature Information Summary				Published Storage Potential (AF)	Step 2: Screening Results				Step 3: Ranking Recommendation		Notes
	On-stream	Off-stream	Existing	Unclassified		Hydrology	Special Designation	ESA/ Bull Trout	Minimum Size	Carry Forward?	Eliminate?	
Upper Big Willow Creek		X			160-350,000					✓		
Upper Payette Lake			X		37-98,000					✓		
Upper Shafer Creek		X			93,000					✓		
Upper Squaw Creek		X			2,600,000					✓		
Warm Spring				X	NA				?		✓	Eliminated due to critical bull trout habitat.
Warm Spring Creek		X			61,500					✓		
Wash Creek		X			55,000					✓		
12HG 11				X	NA				?		✓	Eliminated due to critical bull trout habitat.
12HG 13				X	NA				?		✓	Eliminated because only limited information (including site location) available.
12HG 21				X	NA				?		✓	Eliminated because only limited information (including site location) available.
12HG 22				X	NA				?		✓	Eliminated because only limited information (including site location) available.
12GH 23				X	NA				?		✓	Eliminated because only limited information (including site location) available.
12GH 24				X	NA				?		✓	Eliminated because only limited information (including site location) available.
SUM	24	37	8	45	--	--	--	--	--	37	77	--

Hydrology		Will Not Fill 50% of the Time
		Will Fill 50% of the Time or Off-Stream Site
		Will Fill 80% of the Time
	?	Site Location Unknown
Special Designation		Federal Protection (Wilderness Area) and State-Protected Natural Streams
		State Protected Recreational Streams and Proposed Wild and Scenic
		No Designations
ESA/ Bull Trout		Existing Populations of Bull Trout
		Proposed Habitat, Migratory Habitat, or Populations Unknown
		No Known Populations
Minimum Size		< 50,000 AF
		> 50,000 AF
	?	Size Unknown or Not Applicable

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3.1.1 New Storage

Table 3-2 lists the 200+ potential new storage sites identified within the assessment area. The available information on each site varied widely. While most of the sites had limited or no description of the operational supporting facilities, a limited number had detailed descriptions that included pumping, canals, tunnels, and piping conveyance opportunities.

The capacities of the new storage sites commonly varied by site or by publication, or were not provided at all. However, through the review process it became apparent that most of the storage volumes identified in the literature generally were not associated with any technical justification. The capacities identified in the literature review were ultimately replaced with more realistic and technically supported capacities based on hydrologic volumes derived from a modeling exercise using Reclamation's MODSIM model (described in Section 3.3).

3.1.2 Retrofitting Existing Facilities

Within the Boise and Payette River basins there are several existing Federal and private storage sites (see Chapter 1). Following is a list of retrofitting opportunities at existing facilities that were identified and evaluated in this assessment.

- *Raise Lucky Peak Dam.* Various entities have evaluated raising Lucky Peak Dam or modifying reservoir operations to create an additional 35,000 AF of flood control storage; however, Arrowrock Dam creates upstream inundation limitations. This was evaluated in 1994 (Reclamation/USACE, 1994) but not pursued because costs at that time were considered to be prohibitive. As the value of water increases, additional evaluations could be considered in the future.
- *Raise Arrowrock Dam.* Reclamation (2005c) has evaluated using an additional 2 feet of freeboard, which would yield an additional storage capacity of 6,300 AF. Additional evaluations could be considered in the future.
- *Raise Anderson Ranch Dam.* Reclamation (2005c) developed preliminary estimates associated with raising the Anderson Ranch Dam crest 6 to 16 feet (the larger dam raise would provide additional flood control). Additional storage capacity was estimated at 29,000 AF for a cost of between \$18 and \$27 million. Using another 6 feet of freeboard was also considered. Additional evaluations could be considered in the future.
- *Improve Hubbard Dam.* Hubbard Reservoir currently operates as a re-regulating facility for nearby irrigation water deliveries and as an emergency short-term storage for dewatering the New York Canal during periods when the downstream canal might fail. With an active capacity of 4,000 AF and nearby commercial and residential developments, realistic opportunities for improving the reservoir capacity appear to be limited.
- *Dredge Cascade Reservoir.* Another option that has been discussed is dredging Cascade Reservoir to create an additional 50,000 AF of active capacity in the reservoir. Dredging would not affect the overall footprint of the reservoir, nor have long-term impacts on shoreline improvements. More detailed evaluation beyond existing limited analysis (Reclamation, 2005c) of this concept is needed to better understand its potential.
- *Black Canyon.* Previous studies have estimated that an additional 180,000 AF of storage might be available if Black Canyon Dam were raised so that the facility could be

operated to store water (Reclamation currently operates it as a run-of-river facility). This option could be evaluated in more detail in the future.

- *Payette Lake*. Previous studies have estimated that an additional 30,000 AF of storage might be available if the current facility were expanded. Although Little Payette Lake and Upper Payette Lake were included in previous literature discussions as retrofit options, both were discounted from further review due to geological instability concerns. This option could be evaluated in more detail in the future.
- *Implement Aquifer Storage and Recovery (ASR)*. ASR reflects a management approach where excess surface water (during high-flow periods) is stored underground in a suitable aquifer and recovered during low-flow periods as needed. Water utilities throughout the west are relying more on ASR as a means to provide additional water to meet peak daily or short-term emergency demands, or to provide additional base volumes of water during periods of drought. Other advantages of installing ASR systems include potentially increased instream flows during periods of low summer flow, increased conservation of water due to lower evaporation, and decreased infrastructure costs. Disadvantages of ASR systems include the potential disruption of return springs and flows, damage to riparian and wetland vegetation, potential loss of legal control of the water, and potentially being unable to deliver water to downstream water users. Currently, an ASR approach is most feasible in a closed hydrogeologic system because there is no mechanism in current State law that guarantees injected water will be available later.

Micron Technologies installed an ASR system in the 1990s to provide thermal energy storage so that water temperatures stay consistent for chip manufacturing purposes. United Water Idaho has also explored the use of ASR, recognizing the seasonal benefits even though the water must be pumped twice (once for injection during high flow and again for recovery during low flow) and requires membrane treatment (Rhead, 2004b).

The IWRRI investigated the influence of canal seepage on aquifer recharge in the vicinity of the New York Canal, where it is estimated that between 12 and 20 percent of the surface water that flows through the canal seeps into the underlying surface aquifer (IWRRI, 2002). Losses and gains in this area of the basin correlate strongly with local stratigraphy, and aquifer recharge is limited to the surface (within a few hundred feet) aquifer, not deeper regional aquifers.

The BPBOC is carefully monitoring various ASR discussions, including the relationship between ASR and stormwater drainage. Within their service area, the main issue is that drains collect the majority of water during storm periods, so delivery canals that would be used for ASR do not receive water during storm events. Once water enters the drain, the BPBOC cannot use that water before it leaves the district. Another compounding issue is that these drains supply water to downstream irrigation districts, and diversion of drain water into an ASR system potentially removes that water from meeting downstream water rights. The timing and design of an ASR system in the Boise River basin would need to include a detailed analysis of water use patterns and downstream reuse patterns, which is beyond the scope of this assessment. More detailed evaluation would be needed if this opportunity were carried forward into appraisal/feasibility analysis.

Within the Payette River basin, there may be limited potential for ASR in the Fruitland area as groundwater levels in this area have dropped 20 to 30 feet in the last 30 years (Holladay, pers. comm., 2005).

3.1.3 Data Gaps

As defined in Chapter 1, an assessment study is generally a preliminary survey of problems and needs that relies on existing information to explore conceptual solutions to water resources issues in specific areas.

In an assessment, it is not possible to quantify benefits within a given area. Identified data gaps are related directly to the sheer number of sites evaluated and the current lack of specificity of a potential site. For example, quantifying benefits to fisheries depends on site-specific habitat preferences of native and non-native species within a given reach that cannot be assessed until a specific reservoir site is selected. Despite a relatively robust library of existing literature and current stakeholder input, data gaps certainly exist and are discussed in qualitative terms below.

- *Fisheries.* Effects on downstream, in-facility, and upstream fishery resources cannot be quantified within an assessment. While effects on downstream and upstream fishery resources would be required to be evaluated in detail in potential future analysis, Idaho does support a number of reservoir trophy fisheries, and certainly existing reservoirs provide a suitable habitat for many warm-water and cool-water species. Within southeast Idaho, these species include bass (largemouth and smallmouth), bluegill, black crappie, perch, and catfish (bullhead and channel) (Idaho Rod and Reel, 2005).
- *Recreation.* Effects on downstream and in-facility recreational uses cannot be quantified within an assessment. Many reservoirs in southwest Idaho provide flat-water recreational facilities that are heavily used. Boaters and leisure trip users are common to the existing reservoir facilities in the region, and overnight camping sites are often booked months in advance.
- *Tourism/Destinations.* Effects on other recreational factors cannot be quantified within an assessment. Lakeshore facilities along reservoirs are increasingly being developed as a major destination for weekend and business travel. For example, Tamarack Resort near Lake Cascade attracts regional visitors, as well as those seeking a weekend getaway from the Treasure Valley. As the regional interest in these types of destination areas increases, pressure on resorts such as Tamarack and the surrounding business environment will also likely increase.
- *Water Quality.* Effects on downstream and in-facility water quality cannot be quantified within an assessment. Water quality within the reservoir body itself can be quite variable, ranging from oligotrophic to eutrophic conditions. Downstream from reservoirs, depending on the outlet configuration, elevated summer temperatures can be mitigated by deeper, colder reservoir releases.
- *Wetland Mitigation.* Effects on downstream, in-facility, and upstream wetland resources cannot be quantified within an assessment. Creating a reservoir can increase the shoreline area, which can result in additional wetland acreage. Effective mitigation planning can result in additional forested and scrub-shrub wetlands, as well as emergent wetlands that replace palustrine wetlands lost as part of inundation.
- *Hydropower.* Benefits to hydropower production cannot be quantified within an assessment. Certainly, potential hydropower could be a benefit that could be

incorporated into the design of a new facility. Information on hydropower production within the literature is outdated and would need to be updated in future analysis.

3.2 Screening Process

The 200+ new and existing storage sites identified in the Literature Review (Appendix D) were initially screened to identify a subset of sites that would most likely meet assessment objectives. The initial screening process was based on four “exclusionary” screening criteria that were used to identify new or existing sites that should not be carried forward for more detailed analysis. These criteria were discussed by the SWG for this screening. The four criteria include:

- *Hydrology/Refill Capacity.* This criterion addresses the preliminary yield potential of the site (i.e., the percentage of years it would refill under long-term average hydrologic conditions). This criterion was considered primary because if the site cannot reliably refill, then water user contracts cannot be developed or met.
- *Special Designation.* This criterion addresses special designations such as Wild and Scenic Rivers that potentially represent a major impediment to project success. This criterion was considered primary because if the site is located within a specially designated reach, the possibility of site development diminishes greatly.
- *Endangered Species/Bull Trout Habitat.* This criterion addresses Endangered Species Act (ESA)/bull trout habitat that potentially represents a major impediment to project success. This criterion was considered primary because if the site is located within a reach that supports critical bull trout life stages such as spawning, the possibility of site development diminishes greatly.
- *Minimum Storage Volume.* Acceptable new candidate sites (that would be carried forward into the ranking process) should be based on a minimum storage capacity that would contribute significantly to meeting storage needs (as estimated in Chapter 2). Given the large uncertainty with estimated water supply storage needs, a minimum of 50,000 AF of storage was applied to new sites; retrofitting of existing reservoirs was exempted from this minimum.

The results of these four screening criteria are presented in Table 3-2 and Table 3-3 for the Boise and Payette River basins, respectively, and are discussed in more detail in the following sections.

3.2.1 Hydrologic/Refill Capacity

The preliminary hydrologic/refill capacity analysis was based on USGS stream statistics obtained from the online StreamStats tool. Equations used to estimate stream flow statistics for ungaged sites were developed through a process known as regionalization. This process involves use of regression analysis to relate stream flow statistics computed for a group of selected stream gaging stations to basin characteristics measured for the stations (USGS, 2005). Estimates provided by StreamStats assume natural (unregulated) flow conditions at the site. At this level of analysis, StreamStats does not reflect activities such as dam regulation, water withdrawals, seepage, and return flows that are common to the Boise and Payette River basins, all of which can substantially affect the timing, magnitude, or duration of flows at a selected

site. Because of these limitations, it is important to recognize that at this level of analysis the data are indicative of the hydrologic potential of a location and not the actual discharge that is available to store and divert for downstream uses.⁶

At each site, monthly stream flows that are exceeded 80 percent and 50 percent of the time were determined using StreamStats. Refill potential for on-stream and off-stream sites was evaluated at the on-stream dam or diversion site location. Based on these exceedance flows, if the published site capacity could not refill reliably, the site may have been eliminated from further consideration as described below. (Where no published capacity information was available, a minimum capacity of 50,000 AF was assumed.) The terms R50 and R80 represent the probability that a given facility will refill 50 or 80 percent of the time, respectively. In practical terms, the R50 and R80 are tied to minimum storage volumes (Section 3.2.4) because it is easier to refill a smaller facility more reliably. In the ranking process, this hydrologic/refill analysis is refined further on those sites carried forward (Section 3.3.1).

In this screening process, hydrology/refill capacity was assessed using the following three categories.

- Definitely Carry Forward for Ranking.
R80 (refill 80 percent or more of years) represents a good/acceptable condition.
- Possibly Carry Forward for Ranking.
R80–R50 (refill between 50 percent and 80 percent of years for on-stream sites or where inter-basin transfer possible) represents a moderate condition that may or may not be acceptable depending on the other criteria.
- Do Not Carry Forward for Ranking.
<R50 (cannot refill 50 percent or more of years) represents a poor/unacceptable condition.

Because the number of off-stream sites posed challenges in estimating how much flow would be available, off-stream sites were carried forward only if they passed the other three screening criteria.

The results of this hydrologic/refill capacity analysis are as follows.

- For sites within the Boise River basin, 45 percent were in the good/acceptable category; 46 percent were in the moderate/may or may not be acceptable category; and 9 percent were in the poor/unacceptable category. The majority of sites that were considered unacceptable were located in the higher elevations where not enough drainage area was available to provide sufficient runoff volumes.
- For sites within the Payette River basin, 38 percent were in the good/acceptable category; 46 percent were in the moderate/may or may not be acceptable category; and 16 percent were in the poor/unacceptable category. Similarly, the majority of sites that were considered unacceptable were located in the higher elevations where not enough drainage area was available to provide sufficient runoff volumes.

⁶ A more in-depth level of analysis that considers human activities, dam management, and other factors affecting hydrology in both basins is achieved using MODSIM in the ranking process as described in Section 3.3. MODSIM was used on a more limited number of sites that “passed” the screening process.

Table 3-2 and Table 3-3 provide a summary of the results of this analysis for the Boise and Payette River basins, respectively.

3.2.2 Special Designations

Site locations were examined to determine if they fell within river reaches designated as special status at either the Federal or State level. To determine the status and location of special designation rivers and streams within the Boise and Payette River basins, U.S. Forest Service (USFS) Boise National Forest electronic databases, Idaho Department of Fish and Game (IDFG), Idaho Conservation Data Center (CDC), Idaho Department of Parks and Recreation, IDWR, and Reclamation were accessed for available information.

At the Federal level, such status includes Wild and Scenic Rivers and rivers within Designated Wilderness Areas. Currently, there are no Federally designated Wild and Scenic River segments within the assessment area.

At the State level, management of protected rivers falls under The Idaho Comprehensive Water Planning and Protected Rivers Act of 1988 (Idaho Code, Section 42-1734A et seq.), which established a Statewide review of all Idaho rivers. The IDWR administers the program for the IWRB. Each State-protected river has a list of prohibited activities that may differ depending on its resource values. Although the IWRB recommends river designation and prohibitions based on whether the value of preserving a waterway outweighs the value of development⁷, the IWRB cannot permanently designate a protected river until the legislature approves the designation and its prohibitions. The final, ratified protected river segment and policy becomes part of the Idaho Comprehensive State Water Plan.

A State-protected river can be classified as Natural or Recreational. A Natural-designated river has minimal human-created development in or along the river, while a Recreational-designated river can have substantial human-created development along the river. On Natural-designated Rivers, IDWR prohibits all of the following:

- Construction or expansion of dams or impoundments
- Construction of hydropower projects
- Construction of water diversion works
- Dredge or placer mining (except recreational dredge mining when not specifically prohibited)
- Alterations of the streambed
- Mineral or sand and gravel extraction within the streambed

On Recreational-designated rivers the IDWB may choose which of the above to prohibit. The first two prohibitions could affect the acceptability of potential storage sites identified in this assessment.

⁷ No provision of this program can limit, restrict, or conflict with approved water rights or vested property rights that exist on the designation date. Protected river designations cannot affect licensed hydropower projects that have already generated electricity.

The IWRB recognizes the need to maintain flexibility in the Comprehensive State Water Planning process to meet the changing needs of the public. Basin plans are “flexible” to the extent they can be changed, and this process would be public. Any changes would need to be adopted by the IWRB and the legislature. Consistent with the flexibility provided in the Comprehensive State Water Planning process, potential sites that were located within reaches with special designations were not necessarily eliminated in the screening process, as described below.

In this assessment process, special designated waters were assessed using the following three categories.

- **Definitely Carry Forward for Ranking.**
No Federal or State designation is present at the site. This represents a good/acceptable condition.
- **Possibly Carry Forward for Ranking.**
State-designated Recreational or proposed Federal designation is present at the site. This represents a moderate condition that may or may not be acceptable depending on the other criteria.
- **Do Not Carry Forward for Ranking.**
Federal-designated and State-designated Natural River is present at the site. This represents a poor/unacceptable condition.

The results of this special designated waters analysis indicate the following.

- For sites within the Boise River basin, 49 percent were in the good/acceptable category; 45 percent were in the moderate/may or may not be acceptable category; and 6 percent were in the poor/unacceptable category.
- For sites within the Payette River basin, 48 percent were in the good/acceptable category; and 52 percent were in the moderate/may or may not be acceptable category. No sites were in the poor/unacceptable category.

Table 3-2 and Table 3-3 provide a summary of the results of this analysis for the Boise and Payette River basins, respectively.

3.2.3 ESA/Bull Trout Habitat

This factor addresses ESA/bull trout habitat that potentially represents a major impediment to project success. Bull trout is currently the only Federally listed ESA fish within the Boise and Payette River basins. ESA/habitat information was collected from Reclamation, U.S. Fish and Wildlife Service (USFWS), and USFS. Knowledgeable fisheries staff provided current information on the distribution of bull trout populations and offered a current understanding of the relationship of the species distributions and life-histories to potential storage sites.

The SWG determined that the mere presence of ESA-listed species should not eliminate sites from further analysis. Rather, potential sites located in areas within known resident populations and known critical spawning and rearing habitat were excluded from further analysis. In contrast, migratory or over-wintering habitats, as well as areas with potential but unconfirmed populations, were not necessarily eliminated from further analysis. This division of the life history needs strikes a balance by: 1) providing a preliminary filter that

incorporates ESA concerns, given knowledge of the species and its habitat, and 2) providing a range of reasonable alternatives to carry forward for further review.

In this assessment process, ESA-listed bull trout issues were assessed using the following three categories.

- **Definitely Carry Forward for Ranking.**
No potential, proposed, or occupied habitat present at the site. This represents a good/acceptable condition.
- **Possibly Carry Forward for Ranking.**
Potential or proposed habitat or presence/status unknown at the site. This represents a moderate condition that may or may not be acceptable depending on the other criteria.
- **Do Not Carry Forward for Ranking.**
Known resident populations with known critical rearing or spawning habitat or occupied habitat present at the site. This represents a poor/unacceptable condition.

The results of the bull trout habitat analysis indicate the following.

- For sites within the Boise River basin, 28 percent were in the good/acceptable category; 33 percent were in the moderate/may or may not be acceptable category; and 39 percent were in the poor/unacceptable category. Many of the sites located in known populations or occupied habitat were also sites with insufficient hydrologic/refill capacity because bull trout spawning occurs in higher elevation streams that do not have a great deal of drainage area.
- For sites within the Payette River basin, 48 percent were in the good/acceptable category; 42 percent were in the moderate/may or may not be acceptable category; and 10 percent were in the poor/unacceptable category.

Table 3-2 and Table 3-3 provide a summary of the results of this analysis for the Boise and Payette River basins, respectively.

3.2.4 Minimum Storage Volume

Only new sites with the potential to contribute significantly to meeting storage needs (as defined in Chapter 2) should be carried forward into the ranking process.

In this assessment process, minimum volume was assessed using the following two categories.

- **Definitely Carry Forward for Ranking.**
A minimum published volume of 50,000 AF or greater represents a good/acceptable condition.
- **Do Not Carry Forward for Ranking.**
A minimum published volume of less than 50,000 AF represents a poor/unacceptable condition.

The minimum of 50,000 AF applies to new sites; existing reservoirs are exempted from this minimum storage volume criteria recognizing that an option of assembling 50,000 AF or more volume from actions at two or more existing reservoirs warrants further analysis. Sites in the “unknown” category (with an unspecified capacity) were assumed to represent a

poor/unacceptable condition and were not carried forward for ranking unless they met all of the other three screening criteria.

The results of this analysis indicate the following.

- For sites within the Boise River basin, 30 percent were in the good/acceptable category; 34 percent were in the poor/unacceptable category; and 36 percent of the sites had no capacity information available.
- For sites within the Payette River basin, 39 percent were in the good/acceptable category; 23 percent were in the poor/unacceptable category; and 37 percent of the sites had no capacity information available.

Table 3-2 and Table 3-3 provide a summary of the results of this analysis for the Boise and Payette River basins, respectively.

3.2.5 Conclusions of the Screening Process

In addition to the “exclusionary” criteria summarized previously, several sites identified in the literature review were “consolidated.” Multiple sites located near each other on a single tributary were consolidated to reduce the number of sites being assessed on any given tributary and to reduce redundancy. For example, on most tributaries in the two basins, several (sometimes greater than 10) potential sites have been identified in previous studies. The basic “rules” used in the consolidation process include the following:

- Two or more sites that were located close together, with equal screening characteristics, were consolidated into one.
- Sites identified only as low-head hydropower potential that were located near another, similar on-stream site were consolidated into one site.
- Sites listed in source documents but with no location specified and no additional data for clarification were excluded or consolidated with another site on that tributary.

Application of the exclusionary criteria and consolidation rules yielded a total of 56 sites that were carried forward in the ranking process. These 56 sites break down as follows:

- 15 New On-stream Sites (5 Boise; 10 Payette)
- 30 New Off-stream Sites (11 Boise; 19 Payette)
- 10 Existing Reservoirs (3 Boise; 7 Payette)
- 1 Unclassified Reservoir (1 Payette)

Table 3-2 and Table 3-3 show 200+ potential on-stream, off-stream, existing, and unclassified water storage opportunities identified in the literature review and stakeholder input process and the results of the initial screening process. Those sites that were carried forward to the ranking process, which is discussed in more detail in the following section, are also identified.

3.3 Ranking Process

The screening process described in the previous section resulted in narrowing down a list of more than 200 storage opportunities that had been previously identified either in the literature

or via stakeholder input. The smaller and more refined list of 56 potential storage opportunities was evaluated further and ranked as described in this section. The purpose of the ranking was to identify the water storage opportunities with the most potential for success and to make recommendations on which opportunities should be carried forward to an appraisal/feasibility analysis.

The ranking of potential candidate site screening followed three lines of analysis:

- *Refined hydrologic analysis*: Reclamation’s MODSIM model was used to determine the overall quantities of water available for new storage in each basin and the proportion of that water that could be captured by potential candidate sites. MODSIM represented a more refined hydrologic analysis because it incorporated the management of existing reservoirs, water contracts, water rights, existing regulatory or administrative minimum flows, and other relevant aspects/realities of current operations. Important assumptions used in the MODSIM analysis included: 1) no adverse impact of existing water rights or contracts, and 2) maintenance of minimum flow targets, whether statutory, policy-driven, or established as general goals.
- *Socio-economic and environmental constraints analysis*: Candidate reservoir sites were compared in terms of their relative potential impact on such socio-economic and environmental factors as infrastructure, recreation, and biological resources. The intent of this analysis was to identify (and rank higher) those candidate locations that had relatively fewer socio-economic and environmental constraints to reservoir siting and development.
- *Needs analysis*: The results of hydrologic and constraints analysis were reviewed critically to ensure that final potential candidate sites were capable of meeting a full range of defined needs and achieving a wide range of benefits. For example, some relatively lower scoring sites in the Boise River basin (as determined by rank in the constraints analysis) were retained because of the potential to meet downstream needs such as DCM&I growth and flood control outweighs their relatively lower constraints score.

These analyses are described in more detail in the following sections.

3.3.1 Refined Hydrologic Analysis

A refined hydrologic analysis based on Reclamation’s MODSIM model was conducted on the sites that were carried forward from the screening process. The refined analysis went beyond the StreamStats approach used in the screening process to include operating limitations associated with existing reservoirs (and their return flow estimates), water contracts, water rights, existing regulatory or administrative minimum flows, and other relevant aspects/realities of current operations. These existing operations were considered as “givens” in this analysis. That is, this modeling exercise assumed that any new storage could not negatively impact or affect existing system elements. More detailed discussion of the MODSIM set-up, assumptions, and sensitivity analysis is included in Appendix E.

The MODSIM model assisted in identifying high-yield areas of both basins. This is an important consideration because sites recommended for further analysis must be able to capture and store enough water to meet estimated needs. Another advantage of MODSIM is the ability to model desired storage volume targets, which can then be used to determine varying facility volumes and footprint sizes. Facility sizing information based on the MODSIM modeling was also used in evaluating socio-economic and environmental constraints.

Figure 3-2 shows one type of MODSIM output: the probability that a potential site (Example A for illustrative purposes) would be able to fill to a certain volume (which is dependent on the basin yield).

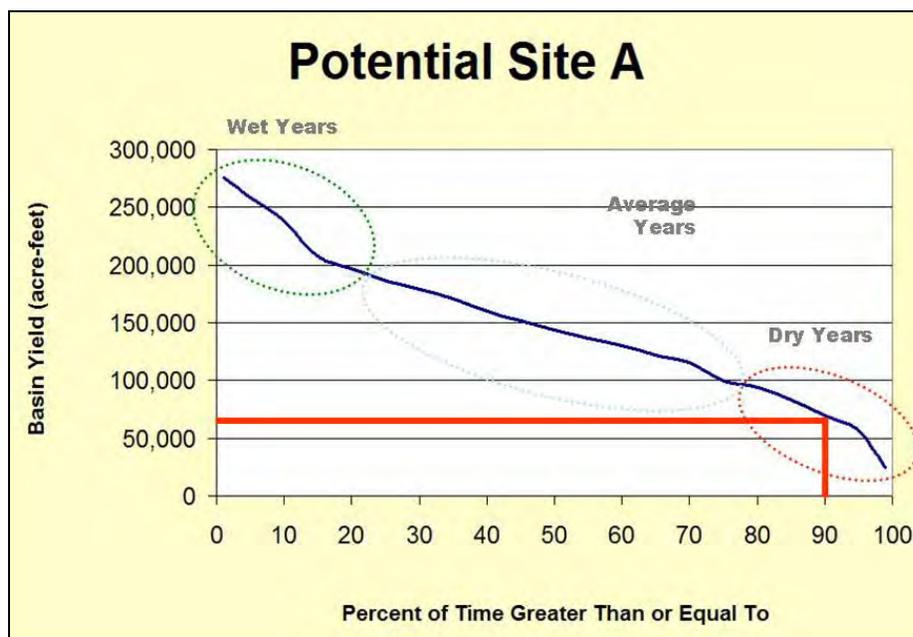


Figure 3-2. MODSIM Probability Curve for Example Site A

This graph shows the annual volume of basin yield, which represents water that can be diverted or stored at varying levels of reliability. For example, the volume of water that can be diverted or stored at least 90 percent of the time (thick red line) is 65,000 AF, which represents a storage volume that could be met even during most dry years. This volume is lower than the volume that could be diverted or stored 50 percent of the time (140,000 AF), which represents average year conditions. To determine the maximum size of a potential storage site, the 90th percentile value was chosen to be conservative under the assumption that water users would expect water deliveries to achieve that level of reliability. While the 90th percentile value provides a conservative view of potential basin yield, the 50th percentile (average) value can just as easily be determined from the MODSIM output.

Certain sites were chosen within each major subbasin or fork to be representative of a group of potential storage sites within the same general location or reach. MODSIM was run for that site and probability curves were developed to be representative of that location or reach. For example, within the North Fork Payette, the Tripod Creek site was modeled and chosen to be representative of basin yields for nearby sites such as Cabarton, Round Valley, and Smith Ferry. Table 3-5 at the end of this chapter summarizes the results of the ranking process, including the MODSIM analysis, and shows the match between representative MODSIM sites and potential storage sites.

In the Boise River basin, five representative sites were modeled in MODSIM (Dry Creek, Rabbit Creek, Casey Ranch, South Fork Boise, and Twin Springs). Figure 3-3 shows the total annual delivery for each of those sites. Figure 3-3 shows that, within the Boise River basin, Dry Creek has the best refill potential (for example, it may be able to reliably deliver 50,000 AF approximately 95 percent of the time based on withdrawals from the lower Boise

River). Upstream sites such as Rabbit Creek and Twin Springs all have higher refill volumes (100,000 AF), but can reliably deliver that higher volume only 80 percent of the time.

In the Payette River basin, eight representative sites were modeled in MODSIM (Big Pine Creek, Firebird, Bissell Creek, Upper Shafer, Boiling Springs, Upper Squaw Creek, Cabarton, and Wash Creek). Figure 3-4 shows that, within the Payette River basin, annual deliveries are relatively higher (between 150,000 and 400,000 AF) than in the Boise River basin, but reliable delivery of these volumes is consistently only about 80 percent of the time. This means that in dry years, a site within the Payette River basin may not be able to capture higher volumes.

Importantly, these graphs portray total annual delivery, not total annual storage capacity. Total annual delivery is composed of both natural flows that can be diverted for use without being stored, and stored flows. This means that possible storage volumes are not synonymous with total annual delivery shown in these figures.⁸

The constraints analysis was based on a high level of reliability (90 percent) in an effort to be conservative and to test potential storage sites and volumes under demanding scenarios (e.g., DCM&I and/or base irrigation supply). Under this assumption, the sites that can store a higher volume of water offer greater operational flexibility (unless the larger size is outweighed by the socio-economic and environmental impacts associated with a larger reservoir footprint). Determination of the most appropriate reliability level will ultimately depend on the demand/use scenario pursued; this consideration is certainly relevant in appraisal/feasibility analysis.

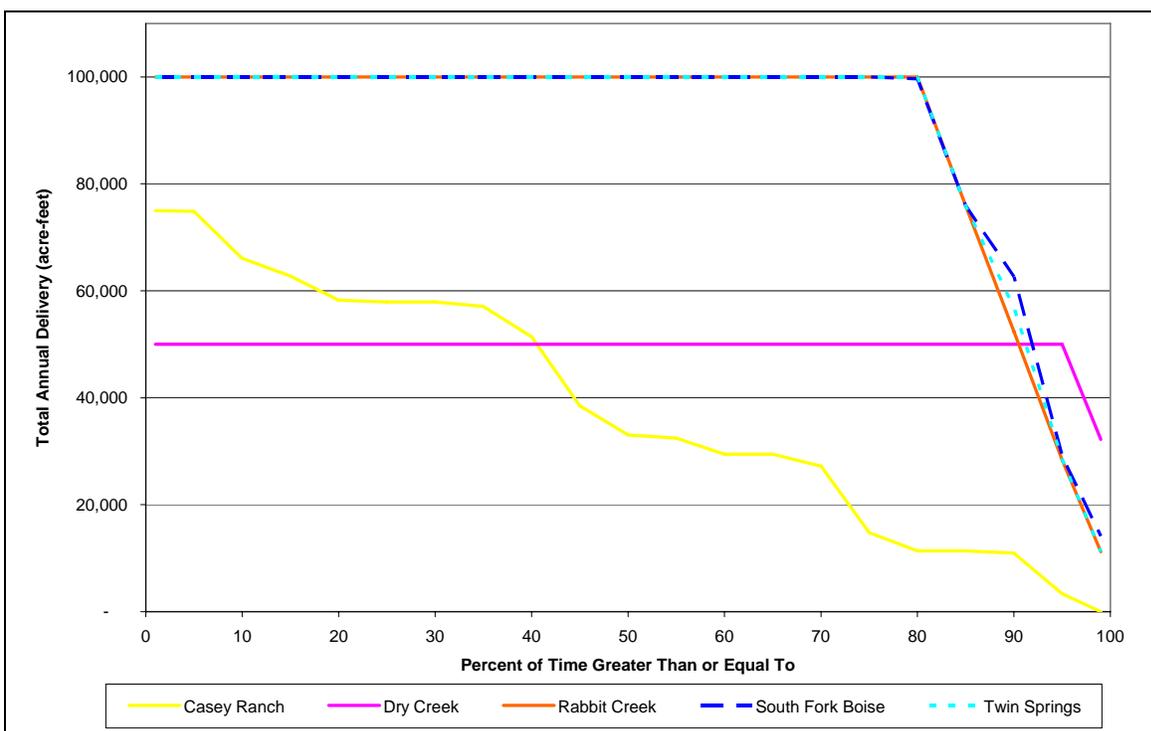


Figure 3-3. Annual Deliveries (Natural and Stored Flows) within the Boise River Basin

⁸ The ultimate sizing of a new or retrofitted existing site would also be dependent on downstream flood control storage requirements.

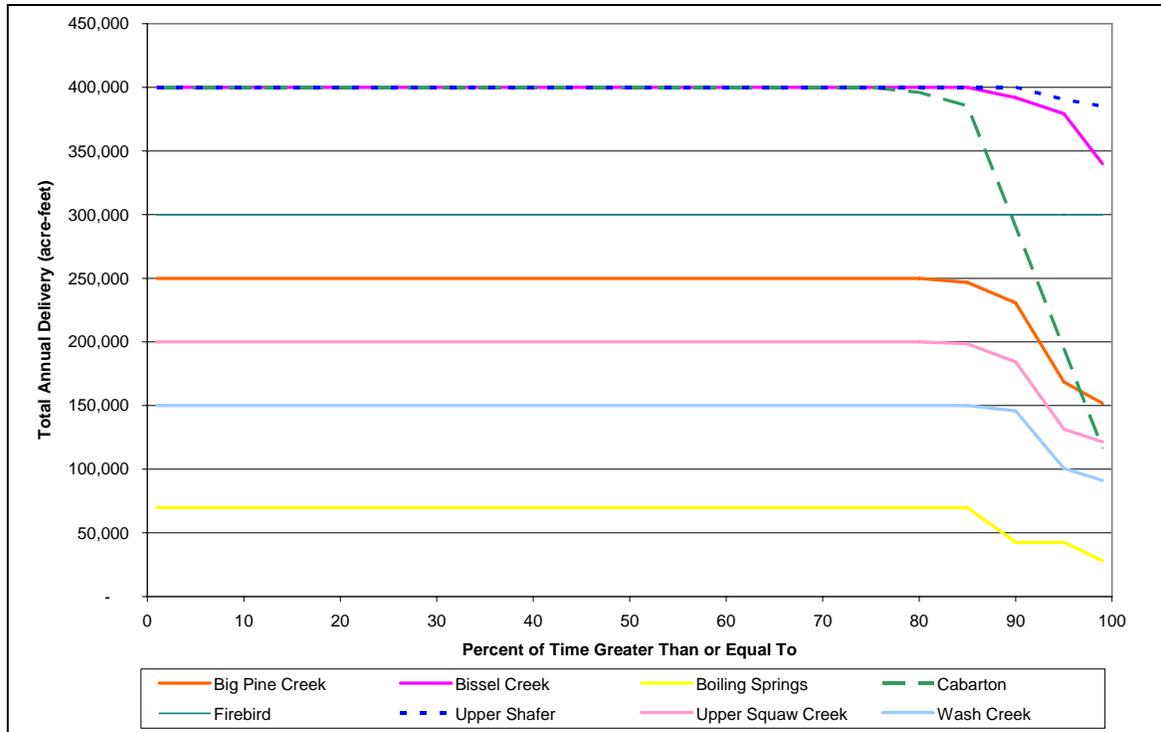


Figure 3-4. Annual Deliveries (Natural and Stored Flows) within the Payette River Basin

3.3.2 Socio-economic and Environmental Constraints Analysis

Following the hydrologic analysis, the next step in the ranking process was to compare candidate reservoir sites in terms of their relative potential impacts on factors such as infrastructure, recreation, and biological resources. The intent of this analysis was to identify those candidate locations that had the least socio-economic and environmental constraints to reservoir siting and development.

This analysis was conducted in three steps:

1. Delineate potential candidate site footprint.
2. Identify and quantify the constraints associated with each potential candidate site.
3. Compare each potential candidate site to develop raw scores and weighted stakeholder value scores.

These steps are described in the following sections.

Potential Candidate Site Footprint Delineation

Based on the results of the MODSIM analysis, an estimate of the reservoir (pool) footprint associated with each potential candidate site was mapped using a 10-meter digital elevation model (DEM) produced by the USGS. For each candidate reservoir site, generalized pool footprints were mapped in increments of 50,000 AF of storage volume. Figure 3-5 provides an example of the footprint delineation at Anderson Creek. Dam site locations for candidate new reservoirs were identified in large part from previous studies. In cases where no

conceptual location had previously been mapped, local terrain conditions were assessed to determine a likely site.

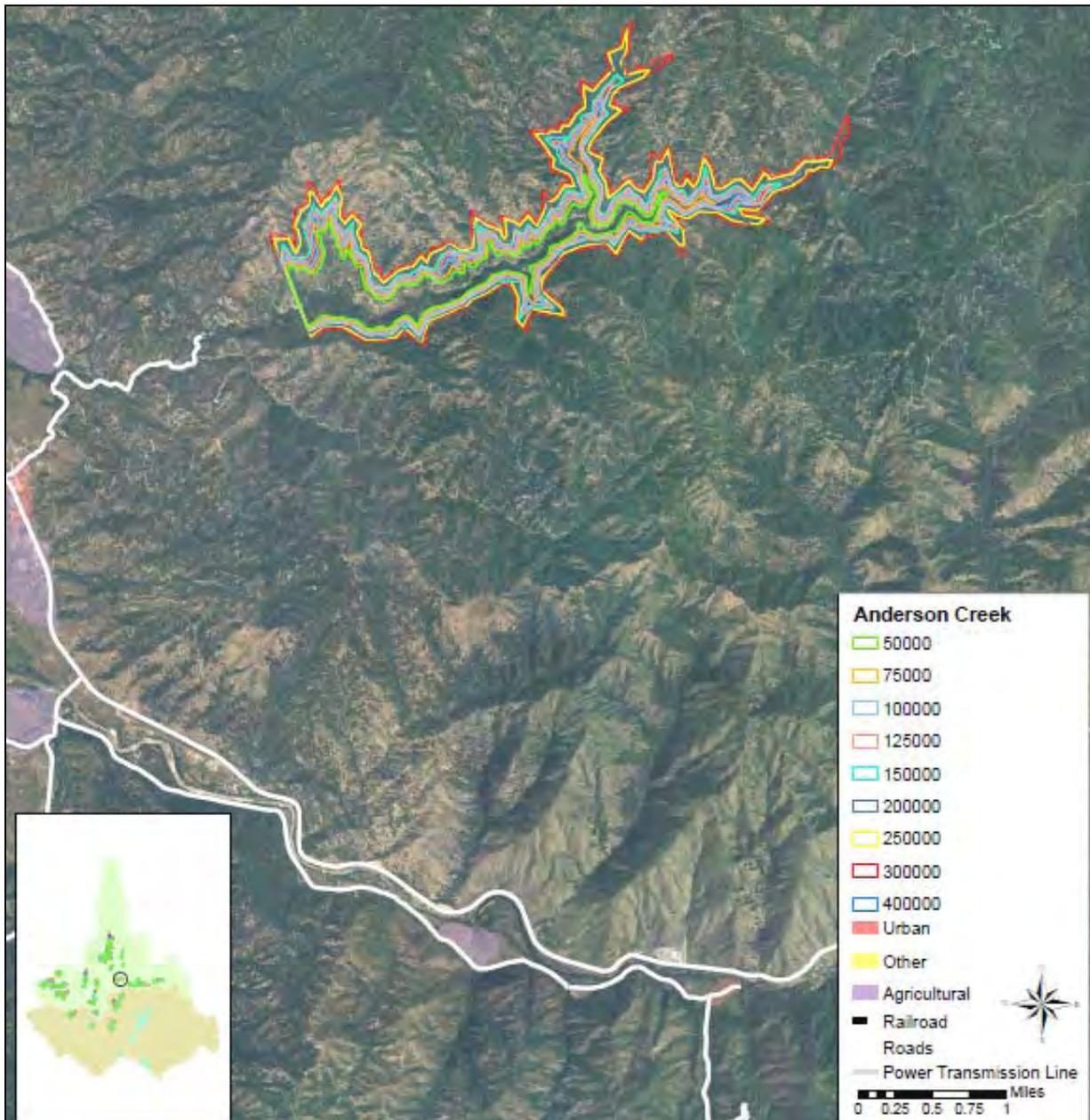


Figure 3-5. Example Footprint Delineation at Anderson Creek

The maximum pool size at any given site was based on either: 1) the maximum basin yield available for storage in the watershed (according to the MODSIM analysis), or 2) general site conditions, whichever was most limiting. The maximum pool footprints are based on the maximum volume that could reliably be diverted and stored 90 percent of the time. The maximum pool in the Payette River basin ranged from 50,000 AF to 300,000 AF and the maximum pool footprint for sites in the Boise River basin ranged from 50,000 AF to 100,000 AF.

Using Geographic Information Systems (GIS), the pool footprints for all potential candidate sites were overlaid onto available infrastructure, recreation, and biological resource, land ownership, and land use data. Based on the pool footprints, the relative impacts for various factors were quantified and reported in the following terms (as appropriate given the constraint):

- Acres per 10,000 AF of storage for land ownership, lands uses, and species habitats
- Miles per 10,000 AF of storage for roads, transmission lines, recreational segments, and aquatic habitats
- Instances per 10,000 AF of storage for existing recreation sites

How these units of measurement were used to develop a score to rank potential candidate sites is explained in more detail below.

Identification and Quantification of Socio-economic and Environmental Constraints

Criteria used in the ranking consisted of both socio-economic factors and environmental factors as shown in Table 3-4.

Table 3-4. Constraints Analysis Criteria

Categories	Factors	Criteria
Socio-economic	Existing Land Use	Residential uses
		Other developed uses (C/M/I)
		Irrigated/developed agriculture
	Recreation	Recreation site(s)
		Noted fishing reach
	Infrastructure	Roads/highways or railroads
Other (e.g., transmission lines, telecom facilities)		
Environmental	Federal Endangered Species	Bull Trout migratory, over-wintering, or proposed critical habitat ¹
	Sensitive Species ²	Aquatic species habitat
		Terrestrial species habitat
	Protected Management Status: Federal	Candidate Wild and Scenic Reach or Wilderness Study Area
		Designated Roadless Area, Research Natural Area, or Area of Critical Environmental Concern
Protected Management Status: State	Designated Recreation River (included streams noted for boating recreation)	

NOTES:

¹Sites with resident populations or critical spawning habitat were eliminated during initial screening

²Candidate ESA species or State Species of Special Concern

Each of these factors, including their data sources, is discussed below.

Socio-economic Factors

Based on a review of available data (at the scale of this assessment) and discussion with the SWG, the following socio-economic criteria were evaluated:

- Existing Land Uses
 - Residential uses—towns and cities
 - Other developed uses—commercial/municipal/industrial (C/M/I), mines, airports, gravel pits, and golf courses
 - Irrigated/developed agriculture—row crops, irrigated pasture and hay fields, dry farm crops, and fallow fields

Source: Idaho Gap Analysis—This Statewide dataset provides planning-level data for urban land, other developed land, and agriculturally developed land.

- Recreation
 - Recreation sites—direct impacts to boat ramps, campgrounds, community parks, and State parks
 - Noted fishing reaches—river reaches that have special rules/regulations intended to protect priority fishing reaches (e.g., no bait, barbless hooks, catch/release)

Source: GIS databases from USFS, IDPR, and IDFG.

- Infrastructure
 - Roads/highways or railroads—would require re-routing
 - Other (power transmission lines, telecom facilities)—would require re-routing

Sources: Road/highway GIS data from Idaho Transportation Department, Railroad GIS data from University of Idaho library, and power transmission data from GIS depot.

Environmental Factors

Based on a review of available data (at the scale of this assessment) and discussion with the SWG, the following criteria were evaluated:

- Endangered Species
 - Removes Federally listed ESA bull trout habitat (migratory, over-wintering, or proposed critical).⁹

Sources: Reclamation, USFS, and IDFG agency personnel and published reports.

- Sensitive Species
 - Removes species habitat of State Species of Special Concern. For aquatic species, this parameter includes areas suspected of containing pure strains of native redband rainbow trout. For terrestrial species, this parameter includes areas identified as known or potential habitat of State and Federally listed species.

Sources: IDFG is currently investigating the genetic distribution of redband rainbow trout; information from Reclamation, IDFG, and USFS provided areas suspected of containing pure strains of redband rainbow trout. Terrestrial species are from the CDC.

⁹ This parameter includes areas typically lower in the basins that are downstream of known, local resident populations or that are within spawning and rearing sites of migratory fish.

- Protected Management Status: Federal
 - Candidate Wild and Scenic River
 - Designated Roadless Area
 - Research Natural Area
- Sources: CDC and USFS databases.
- Protected Management Status: State-Designated Natural and Recreation Rivers
 - At present, the State has assigned a protective designation to Recreational Rivers allowing only minimal development. Rivers designated as Natural are currently prohibited from development.

Sources: State, CDC, and USFS databases.

Comparison and Scoring of Constraints

Raw Scoring Process

In order to enable valid, equal comparison of candidate sites against one another, the results of the “per 10,000 AF” measurements were translated into a common “language.” This was accomplished for each criterion by determining the range of impacts encountered among all sites, and interpreting this range for each site as shown below.

Level of Impact/Extent of Constraint	Constraint/Impact Score
- In top third of range	1
- In middle third of range	2
- In bottom third of range	3
- Constraint not encountered	4

The following simple example illustrates this translation. Assuming the range of impacts on residential land use (among all candidate reservoir opportunities) is a minimum of 0 to a maximum of 100 acres per 10,000 AF of storage, the impact score for this criterion would be derived as shown below.

For each candidate site:	Constraint/Impact Score
- 67 to 100 acres of impact/10,000 AF	1
- 34 to 66 acres of impact/10,000 AF	2
- 1 to 33 acres of impact/10,000 AF	3
- 0 acre of impact/10,000 AF	4

This method allows comparison of sites in a simple, straightforward manner, both on a criterion-by-criterion basis and in terms of overall performance on all criteria (that is, by summing individual criterion scores to obtain a total constraint/impact score). Overall, the sites with the highest scores are the most attractive because they evidence the fewest constraints.

	Constraint/Impact Score				
	Criterion 1	Criterion 2	Criterion 3	Criterion 4	Total
Site 1	1	2	4	2	9
Site 2	4	4	3	4	15
Site 3	3	4	3	3	13
Site 4	2	1	3	3	9
Site 5	2	1	3	2	8

These raw scores provided a view of the “best/least constrained” sites, assuming all the criteria were of equal importance.

Weighted Scoring Process

Raw scores were then weighted to reflect varied SWG points of view regarding which of the criteria are most important to decision-making. Stakeholders were asked to assign relative importance using the following process:

- Rate the importance of each Factor (see Table 3-4) (e.g., land ownership, existing land uses, recreation, etc.) on a scale of 1 to 3, with 1 being least important and 3 being most important.
- Rate the importance of each Criteria (see Table 3-4) (e.g., urban uses, road/highway/railroads, species habitat, etc.) on a scale of 1 to 3, with 1 being least important and 3 being most important.
- Using 100 points, assign part to each constraint Category (see Table 3-4) (e.g., Socio-economic and Environmental) with a higher allocation indicating greater importance.

A total of 15 SWG responses was received and the results were analyzed to establish an average set of importance values for the criteria. These values were then used as multipliers with the constraint/impact scores described previously. Thus, a second weighted score was achieved based on relative importance input.

The complete list of importance values derived from SWG input is included as Appendix F. However, it is relevant to note that of the 15 responses received, six generally assigned higher importance to socio-economic criteria, six reflected a higher priority to environmental criteria, and three assigned equal importance to both categories.

In order to obtain an indication of which candidate reservoir sites offer the fewest/least extensive potential constraints, total scores were summed for each site. An example summary sheet of the surface storage site evaluation and comparison process is provided in Figure 3-6. Complete scores are provided in Appendix G.

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet -

High 1/3 
 Mid 1/3 
 Low 1/3 
 None 

Level 2 Analysis		Relative Importance
Factors	Criteria	Result Summary Score
Land Acquisition		
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage  4 X 1 = 4
Socioeconomic Factors		
Existing Land Use	Displaces urban uses  4 X 3.1 = 12	
	Displaces other developed uses  4 X 2.7 = 11	
	Displaces irrigated agriculture  4 X 3.1 = 12	
Recreation	Displaces recreation site(s)  1 X 1.5 = 2	
	Eliminates noted fishing reach  1 X 1.8 = 2	
Infrastructure	Displaces road/highway/railroads  1 X 2.1 = 2	
	Displaces transmission line  4 X 1.9 = 8	
		Socioeconomic Factors Score: 19
Environmental Factors		
Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)  4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)  1 X 3.0 = 3	
State and Federally Listed Species Habitat	Removes species habitat  3 X 3.0 = 9	
Protected Land/River Status: Federal	Candidate Wild & Scenic  1 X 3.0 = 3	
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area	
Protected Land/River Status: State	Designated Recreation River  1 X 3.1 = 3	
		Environmental Factors Score: 11
		Total Score: 30
		83

Figure 3-6. Example Constraints Sheet Showing Raw and Weighted Scores

3.3.3 Needs Analysis

Recognizing that potential candidate sites should be capable of meeting a full range of defined needs and achieving a wide range of benefits, the results of hydrologic and constraints analysis were reviewed critically. The highest scoring potential candidate sites were assessed to determine whether they provided the required benefits (for example, being located in an area that could provide adequate irrigation storage or flood control).

Notably, the majority of sites that scored the highest (both on a raw scoring basis and a weighted scoring basis) were located in the Payette River basin. This is because the Payette River basin generally has fewer infrastructure concerns and fewer potential site locations that are in environmentally sensitive areas. Given the varied uses that might be met with future water storage facilities in both basins, potential sites within the Boise River basin needed to be retained for further analysis, even though they scored relatively lower in general than potential sites within the Payette River basin.

In addition to carrying forward sites to meet specific basin needs, land ownership was also calculated to present the relative effects of a storage site on private or public lands. Members of the SWG disagreed as to whether potential candidate sites were more or less desirable depending on the affected land uses (public vs. private). To avoid biasing the list of potential candidate sites in favor of purely public or purely private lands, this information is simply summarized in Appendix J to be used in future phases of analysis. The information summarized in Appendix J shows the percentage of Federal, State, and private land that would be inundated by a new reservoir at selected sites recommended for further analysis.

3.3.4 Results of the Ranking Process

Table 3-5 provides a summary of how each site scored in the ranking process. Detailed scores are presented in Appendix G for varying reservoir storage volumes (and footprints).

To reiterate, an initial list of 200+ sites was narrowed in the screening step to provide a refined list of sites that could be evaluated in more depth as part of the ranking step. There are a few sites that were carried forward to the ranking step, but for which no scores were calculated (shown as n/a in Table 3-5). A footprint for these sites was not calculated (and no scores assigned) if initial MODSIM results indicated poor refill potential (Casey Ranch, Cat Creek, Moores Flat, Cottonwood Creek, Gold Fork [on-stream], and Ola), or if site topography would not fit a minimum storage volume of 50,000 AF (Coyote Butte and High Valley). Gold Fork (off-stream) was also not scored because a new reservoir footprint would overlap with the existing Horsethief Reservoir.

The results of the screening and ranking process indicate that viable potential water storage sites tend to cluster in discrete reaches and subbasins. To be more useful in future studies, a decision was made to define these clusters as “areas of opportunity” and to recommend they be used as starting points for future analysis. Recognizing that the top candidates in each basin are located within a few broad reaches (because these areas represent that balance between providing downstream use benefits and minimizing impacts), “areas of opportunity” are defined so that future analysis is not limited to potential candidate sites that were previously identified in the literature. Thus, these “areas of opportunity” represent areas that have the greatest potential for meeting future demands, while minimizing impact to contemporary socio-economic and environmental values. These areas are described in more detail in Chapter 4.

Table 3-5. Summary of Ranking Process for Sites in Both Basins

		Ranking Results							
		Refined Hydrologic Analysis		Constraints Analysis (Weighted Scores)			Recommendation		
Site Name	Type	Representative MODSIM Site	Potential Storage Capacity (AF, 90% Reliability)	Socio-economic Score	Environmental Score	Total Score	Include in "Area of Opportunity"?	Eliminate?	Notes
BOISE RIVER BASIN									
Alexander Flats	On-stream	Rabbit Creek/ Twin Springs	50,000	49	34	83	✓		North Fork/Middle Fork Boise
Anderson Ranch	Existing	Casey Ranch	10,000	33	36	69	✓		Lucky Peak, Arrowrock, or Anderson Ranch
Arrowrock	Existing	Twin Springs/ South Fork Boise	50,000-60,000	61	27	88	✓		Lucky Peak, Arrowrock, or Anderson Ranch
Barber Flats	On-stream	Rabbit Creek	50,000	59	49	108	✓		North Fork/Middle Fork Boise
Casey Ranch	On-stream	Casey Ranch	10,000	n/a	n/a	n/a		✓	No score because poor refill potential
Cat Creek	Off-stream	Casey Ranch	10,000	n/a	n/a	n/a		✓	No score because poor refill potential
Coyote Butte	Off-stream	South Fork Boise	60,000	n/a	n/a	n/a		✓	No score because topography would not fit a minimum storage volume of 50,000 AF
Dry Creek	Off-stream	Dry Creek	50,000	59	74	133		✓	Withdrawals from Lower Boise River not practical
Dunnigan Creek	Off-stream	Wash Creek/Big Pine Creek	150,000-225,000	59	56-59	114-117	✓		Lower South Fork Payette
Firebird	Off-stream	Firebird	300,000	49-51	74	123-125	✓		Mainstem Payette (although ability to deliver to downstream users is limited)
Grimes Creek	Off-stream	Wash Creek/Big Pine Creek	150,000-225,000	41-59	56	97-114	✓		Lower South Fork Payette
Indian Creek-Mayfield	Off-stream	South Fork Boise	60,000	53	74	127	✓		Lower South Fork Boise
Krall Mountain	Off-stream	South Fork Boise	60,000	56	59	115	✓		Lower South Fork Boise
Lucky Peak	Existing	Twin Springs/ South Fork Boise	50,000-60,000	50	53	103	✓		Lucky Peak, Arrowrock, or Anderson Ranch

Table 3-5. Summary of Ranking Process for Sites in Both Basins (Continued)

		Ranking Results							
		Refined Hydrologic Analysis		Constraints Analysis (Weighted Scores)			Recommendation		
Site Name	Type	Representative MODSIM Site	Potential Storage Capacity (AF, 90% Reliability)	Socio-economic Score	Environmental Score	Total Score	Include in "Area of Opportunity"?	Eliminate?	Notes
Moore's Flat	Off-stream	Casey Ranch	10,000	n/a	n/a	n/a		✓	No score because poor refill potential
Pioneerville	Off-stream	Wash Creek/Big Pine Creek	150,000-225,000	37-45	56-62	96-107		✓	Relatively lower score compared to nearby Grimes Creek
Rabbit Creek	Off-stream	Rabbit Creek	50,000	61	58	119	✓		North Fork/Middle Fork Boise
South Fork Boise River	On-stream	South Fork Boise	60,000	49	18	67		✓	Low environmental score
Twin Springs	On-stream	Twin Springs	50,000	49	21	70	✓		North Fork/Middle Fork Boise
PAYETTE RIVER BASIN									
Anderson Creek	Off-stream	Wash Creek/Big Pine Creek	150,000-225,000	65	59-62	123-126	✓		Lower South Fork Payette
Archie Creek	On-stream	Wash Creek/Big Pine Creek	150,000-225,000	59-61	24-33	83-92		✓	Low environmental score
Big Pine Creek	On-stream	Wash Creek/Big Pine Creek	150,000-225,000	47-59	24	71-83		✓	Low environmental score
Big Payette Lake	Existing	n/a	n/a	41	56	97		✓	Cascade Reservoir represents a more feasible retrofit opportunity
Big Willow Creek	Off-stream	Bissel Creek	400,000	59-65	59-65	117-129	✓		Lower Payette
Birding Island	Off-stream	Bissel Creek	400,000	51	56-59	107-110		✓	Relatively lower score compared to nearby Bissel Creek
Bissel Creek	Off-stream	Bissel Creek	400,000	48-50	65-68	114-117	✓		Lower Payette
Black Canyon	Existing	Upper Shafer Creek/Bissel Creek	400,000	39	71	110		✓	Cascade Reservoir represents a more feasible retrofit opportunity
Boiling Springs	On-stream	Boiling Springs	50,000	60	28	88		✓	Relatively low storage potential relative to environmental impacts
Cabarton	On-stream	Cabarton	300,000	22-40	46-49	68-86		✓	Low socio-economic (recreation) score

Table 3-5. Summary of Ranking Process for Sites in Both Basins (Continued)

		Ranking Results							
		Refined Hydrologic Analysis		Constraints Analysis (Weighted Scores)			Recommendation		
Site Name	Type	Representative MODSIM Site	Potential Storage Capacity (AF, 90% Reliability)	Socio-economic Score	Environmental Score	Total Score	Include in "Area of Opportunity"?	Eliminate?	Notes
Cascade	Existing	n/a	n/a	n/a	n/a	n/a	✓		Cascade Reservoir
Cottonwood Creek	On-stream	Cabarton/ Upper Squaw	180,000-300,000	n/a	n/a	n/a		✓	No score because poor refill potential
Deadwood Canyon	Un-classified	Wash Creek/Big Pine Creek	150,000-225,000	65	31	96		✓	Low environmental score
Deadwood Reservoir	Existing	n/a	n/a	61	50	110		✓	Cascade Reservoir represents a more feasible retrofit opportunity
Dry Buck Creek	Off-stream	Cabarton/ Upper Squaw	180,000-300,000	59-61	74	132-134	✓		Mainstem Payette
Gold Fork	On-stream	Cabarton	300,000	n/a	n/a	n/a		✓	No score because poor refill potential
Gold Fork	Off-stream	Cabarton	300,000	n/a	n/a	n/a		✓	No score because a new reservoir footprint would overlap with the existing Horsethief Reservoir
High Valley	Off-stream	Cabarton/ Upper Squaw	180,000-300,000	n/a	n/a	n/a		✓	No score because topography would not fit a minimum storage volume of 50,000 AF
Horseshoe Bend	On-stream	Upper Shafer Creek	400,000	35	58-71	91-106		✓	Low socio-economic (infrastructure impacts) score
Little Payette Lake	Existing	n/a	n/a	54	65	119		✓	Cascade Reservoir represents a more feasible retrofit opportunity
Little Willow Creek	Off-stream	n/a	n/a	53	62	115		✓	Ability to deliver to downstream users limited
Lower Squaw Creek	Off-stream	Cabarton/ Upper Squaw	180,000-300,000	46-55	62-68	107-123	✓		Lower North Fork Payette/ Mainstem Payette
Middle Fork Payette River	Off-stream	Boiling Springs	50,000	45-50	34-46	81-90		✓	Low environmental score
Ola	On-stream	Cabarton/ Upper Squaw	180,000-300,000	n/a	n/a	n/a		✓	No score because poor refill potential

Table 3-5. Summary of Ranking Process for Sites in Both Basins (Continued)

		Ranking Results							
		Refined Hydrologic Analysis		Constraints Analysis (Weighted Scores)			Recommendation		
Site Name	Type	Representative MODSIM Site	Potential Storage Capacity (AF, 90% Reliability)	Socio-economic Score	Environmental Score	Total Score	Include in "Area of Opportunity"?	Eliminate?	Notes
Oxbow Bend	On-stream	Wash Creek/Big Pine Creek	150,000-225,000	45	18-24	63-69		✓	Low environmental score
Paddock Valley	Existing	n/a	n/a	56	74	129		✓	Facility too small and ability to deliver to downstream users limited
Round Valley	Off-stream	Cabarton	300,000	44-46	65	108-110		✓	Low socio-economic score
Sand Hollow	Off-stream	Bissel Creek	400,000	50-53	65-68	114-121	✓		Lower Payette
Scriver Creek	Off-stream	Cabarton	300,000	65	59-68	123-132	✓		Lower North Fork Payette
Smith Ferry	On-stream	Cabarton	300,000	22-39	46-49	68-88		✓	Low socio-economic score
Tripod Creek	Off-stream	Cabarton	300,000	55	65-74	120-129	✓		Lower North Fork Payette
Upper Big Willow Creek	Off-stream	n/a	n/a	56	56-59	111-114		✓	Ability to deliver water to downstream uses limited
Upper Payette Lake	Existing	n/a	n/a	51	49	100		✓	Cascade Reservoir represents a more feasible retrofit opportunity
Upper Shafer Creek	Off-stream	Upper Shafer Creek	400,000	54-57	65-68	119-124	✓		Mainstem Payette
Upper Squaw Creek	Off-stream	Cabarton/Upper Squaw	180,000-300,000	36-46	68	104-113	✓		Lower North Fork Payette
Warm Spring Creek	Off-stream	Boiling Springs	50,000	65	53	117		✓	Relatively low storage potential relative to environmental impacts
Wash Creek	Off-stream	Wash Creek/Big Pine Creek	150,000-225,000	65	65-68	129-132	✓		Lower South Fork Payette

NOTES: Sites with a range of scores were evaluated under varying storage volumes (and footprints); variable scores reflect varying footprint sizes and their effects on the socio-economic and environmental criteria. These scores are presented in more detail in Appendix G.

4. Potential “Areas of Opportunity”

4.1 Identification of “Areas of Opportunity”

The original intent of the assessment was to narrow down the exhaustive list of all possible storage opportunities into a few that could be carried forward into an appraisal/feasibility analysis. Relying on existing information, current stakeholder input, and a ranking process, the results of the assessment showed that viable potential water storage sites tend to cluster in discrete reaches and subbasins. These clusters have been delineated as “areas of opportunity.” The “areas of opportunity” approach represents a flexible, yet technically defensible, framework for further analysis.

These “areas of opportunity” are pockets in each of the basins where excess natural water supplies may be available for storage and where, at an assessment-level analysis, there are apparently fewer potential socio-economic and environmental effects relative to other areas within each basin (see Section 3.3). The “areas of opportunity” each contain several of the most promising sites and represent a starting point for future analysis.

Each “area of opportunity” is characterized by the source water that would either be retained within an on-stream facility, or diverted to an off-stream facility. Hence, each “area of opportunity” actually encompasses two components: source water and specific storage sites that would have the greatest potential of success (Figure 4-1).

- Source water yields in the Boise River basin may be up to 50,000 AF, while in the Payette River basin source water yields may provide up to 300,000 to 400,000 AF. These volumes are based on the important assumption that the available water that would be stored could be provided reliably 90 percent of the time to water users.
- Eight “areas of opportunity” are identified, largely based on the screening and ranking of specific potential storage sites identified in the literature review. It is recognized that future analysis in any of these areas would continue to evaluate impacts of site-specific alternatives on socio-economic and environmental values to a greater depth (for example, reaches with special designations).

In Figure 4-1, sites with relatively high scores are identified with red text, while sites with somewhat lower scores that are retained within an “area of opportunity” are identified with black text. “Areas of opportunity” are identified with yellow hatch marks. Potential conveyance/water transmission pipelines from a source diversion point to an off-stream storage facility are identified with red lines; no detailed siting information was used to establish these potential lines except for the shortest linear distance between a potential diversion location and the identified storage site. Conveyance/water transmission pipelines that extend outside the yellow hatched “area of opportunity” reflect the fact that some of the sites are located some distance away from a potential diversion point within the identified reach.

“Areas of opportunity” include the following.

- *Lower South Fork Boise*
- *North Fork/Middle Fork Boise*

- *Lower South Fork Payette*
- *Lower North Fork Payette*
- *Mainstem Payette*
- *Lower Payette*

The distribution of these areas is weighted toward the Payette River basin because this basin has a relatively lower incidence of potential socio-economic and environmental concerns. However, the majority of projected water uses are located in the Boise River basin (see Chapter 2). Therefore, “areas of opportunity” that received relatively lower scores in the Boise River basin (as compared to “areas of opportunity” in the Payette River basin) were retained and are recommended for consideration in future appraisal/feasibility analysis. The relative opportunities and challenges associated with specific “areas of opportunity” in both basins are discussed in more detail in the following section.

Two potential new sites with relatively high ranking scores were not considered further: Dry Creek and Paddock Valley. Dry Creek represents an off-stream facility that would be filled with water diverted from the lower Boise River. This site was not considered further because consumptive uses (DCM&I and irrigation), as well as flood control in this basin are located upstream from this location. Paddock Valley was also not considered further because the total estimated volume from retrofitting this existing facility was only 6,300 AF.

In addition to “areas of opportunity” for new storage sites, a few existing retrofitting opportunities have potential to be carried forward to an appraisal/feasibility analysis. These retrofitting “areas of opportunity” include the following.

- *Raising Lucky Peak, Arrowrock, or Anderson Ranch Dams*
- *Dredging Cascade Reservoir*

Within each of these eight “areas of opportunity,” there is some flexibility in how future storage sites might be configured using a combination of diversion structures, on-stream or off-stream storage facilities, and water release rules that would work with existing reservoir operations. Some combination of physical structures or inter-basin exchanges may provide the greatest flexibility in meeting future water needs in both basins. These flexibilities can be explored in the next level of study.

Each “area of opportunity” is discussed in the following sections.



Figure 4-1. Identified “Areas of Opportunity”

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4.2 Comparison of Technical Attributes

A comparison of the technical attributes of each “area of opportunity” is described and discussed in more detail in the following section. The information includes the following elements.

- *Figure.* More detailed maps associated with each “area of opportunity” are presented.
- *Description.* Each “area of opportunity” encompasses two components: source water and specific storage sites. These specific storage sites represent those sites that were identified in the literature (see Appendix D for references on a site-specific basis), and “passed” both the screening and ranking processes. Specific storage sites to be evaluated in appraisal/feasibility analysis may not be limited to these sites and may include new storage sites within the “area of opportunity.” “Areas of opportunity” are identified with yellow hatch marks. Potential conveyance/water transmission pipelines from a source diversion point to an off-stream storage facility are identified with red lines; no detailed siting information was used to establish these potential lines except for the shortest linear distance between a potential diversion location and the identified storage site. Conveyance/water transmission pipelines that extend outside the yellow hatched “area of opportunity” reflect the fact that some of the sites are located some distance away from a potential diversion point within the identified reach. Also, the term “hydrologic divide” in this description refers to the natural topographic divide that might separate a diversion point from an off-stream storage site in an adjacent drainage.
- *Maximum hydrologic potential.* As described in Chapter 3, this annual volume represents the available water that could be used to meet future demands reliably 90 percent of the time. MODSIM results for each “area of opportunity” are shown in Figure 3-3 (Boise River basin sites) and Figure 3-4 (Payette River basin sites). Importantly, Figures 3-3 and 3-4 show total annual delivery (composed of both natural flows that can be diverted for use without being stored and stored flows) and, conceptually, possible storage volumes are not synonymous with total annual delivery. However, total annual delivery in this discussion was assumed to be the same as the maximum hydrologic potential because this volume represents the upper boundary of what could be stored. For simplicity in this discussion, the MODSIM-modeled hydrologic potential for all “areas of opportunity” are rounded to the nearest 50,000-AF increment. Depending on how a facility is designed and operated, additional space could also be made available for flood control capacity.
- *Feasible uses.* Uses include DCM&I, irrigation, flood control capacity, and flow augmentation. Each of these uses is described in more detail in Chapter 2.
- *Cost considerations.* Assessment cost estimates reflecting only field (direct) construction costs were prepared for potential new storage opportunities. Rough field construction cost estimates of project features were compiled using other past and current reservoir development costs and interpolated for our site conditions. These costs are developed to compare relative differences between “areas of opportunity” and do not reflect site-specific cost estimates of any particular site evaluated in this study. As project details are further developed in appraisal/feasibility analysis, the site-specific accuracy and dependability of the cost estimates would increase. Non-field costs related to permitting, environmental documentation, or mitigation are unknown at this time, but

total costs for project implementation would be larger than the estimated field construction costs presented in this section. Detailed information regarding how the costs were developed is contained in Appendix H.

The conceptual cost estimates are presented only to provide relative construction costs. Cost estimates are shown in a range to reflect the limited site-specific information available during the assessment. The lower-end costs are associated with on-stream facilities that do not require pump stations or pipelines, or off-stream facilities that are located relatively near to their source water. Many of the higher-end costs associated with inter-basin and/or transbasin transfers are related to high pump station costs associated with the larger reservoir sizes.

- *Opportunities/challenges.* Opportunities and challenges are an inherent part of this assessment because each “area of opportunity” carries certain inherent benefits and socio-economic and environmental impacts. For example, consistent with the flexibility provided in the Comprehensive State Water Planning process, potential diversion and/or storage sites on Recreational-designated reaches continue to be considered, recognizing more extensive evaluation of environmental issues would need to occur in the approval/feasibility analysis. Trade-offs will be discussed in this section.

4.2.1 Lower South Fork Boise “Area of Opportunity”

- *Figure.* Figure 4-2 shows an enlarged map of this “area of opportunity.”
- *Description.* Indian Creek-Mayfield and Krall Mountain were previously identified as potential off-stream storage sites associated with this reach of river. Either facility would require a diversion pipeline or tunnel to overcome hydrologic divides. A State-designated Natural River reach is within the “area of opportunity” as is a Federally proposed Wild and Scenic designation. Additionally, this section of river is important bull trout wintering habitat. Any development within this reach would need to further analyze impacts to special designations and protected species.
- *Maximum hydrologic potential.* Results of the MODSIM analysis for the South Fork Boise site (see Figure 3-3) indicate that approximately 50,000 to 60,000 AF could be stored and delivered reliably 90 percent of the time to water users. Depending on how an off-stream facility is designed and operated, additional volume could be available for flood control capacity.
- *Feasible uses.* Uses include DCM&I, irrigation, and flow augmentation. There may be limited flood control capacity depending on the configuration of an off-stream diversion structure and conveyance. If an off-stream facility in the Indian Creek drainage were pursued, direct downstream DCM&I and irrigation uses would be limited.
- *Cost considerations.* Assessment-level field (direct) construction cost estimates range between \$410 to \$600 million for an off-stream, 100,000-AF reservoir (the higher volume is associated with flood control capacity) (see Appendix H). The relatively high costs are associated with diversion, conveyance, and pump station structures that would be necessary for any off-stream facility.
- *Opportunities/challenges.* This area represents a nearby day-use flat-water recreational opportunity for Treasure Valley residents, which would need to be weighed against loss

of free-flowing fishery recreation and habitat. Also, any new facility in this area would need to be operated in a unified manner with other existing upstream and downstream reservoirs.

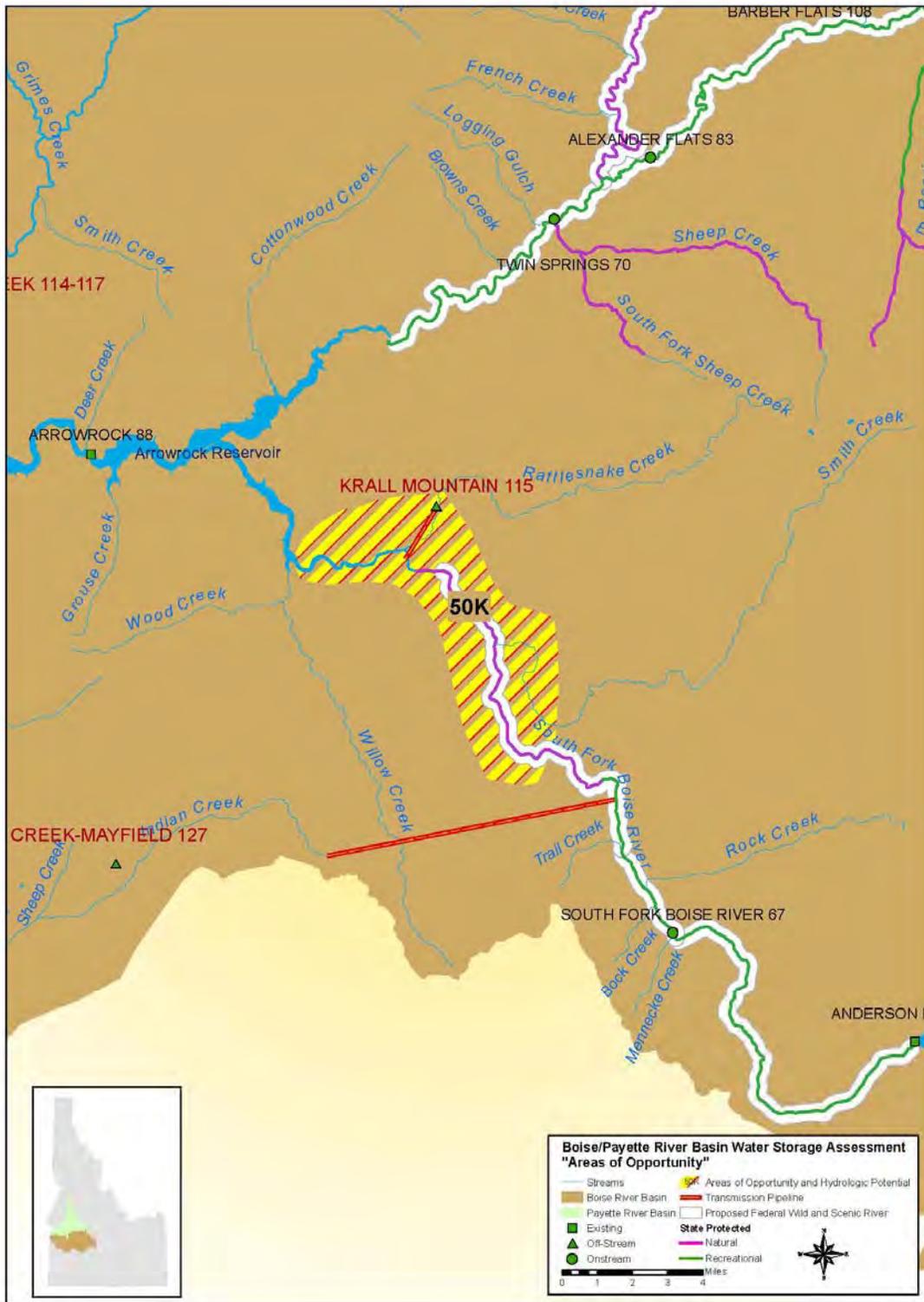


Figure 4-2. Lower South Fork Boise “Area of Opportunity”

4.2.2 North Fork/Middle Fork Boise “Area of Opportunity”

- *Figure.* Figure 4-3 shows an enlarged map of this “area of opportunity.”
- *Description.* This area represents a catchment area where two major forks join, which is strategic for providing flood control. Within this area, multiple configurations of on-stream and off-stream diversions may be possible. Barber Flats, Alexander Flats, Twin Springs, and Rabbit Creek are previously identified sites associated with this stream segment. A State-designated Natural River reach is within the “area of opportunity,” as is a Federally proposed Wild and Scenic designation. Additionally, this section of river is important bull trout migratory habitat. Any development within this reach would need to further analyze impacts to special designations and protected species.
- *Maximum hydrologic potential.* Results of the MODSIM analysis for the Twin Springs and Rabbit Creek sites (see Figure 3-3) indicate that approximately 50,000 AF could be stored and delivered reliably 90 percent of the time to water users. Depending on how a storage facility is designed and operated, additional volume could be available for flood control capacity.
- *Feasible uses.* This area potentially represents on-stream and/or off-stream storage, and associated uses include DCM&I, irrigation, flood control capacity, and flow augmentation.
- *Cost considerations.* Assessment-level field (direct) construction cost estimates range between \$150 to \$380 million for an off-stream, 100,000-AF reservoir (the higher volume is associated with flood control capacity) (see Appendix H). Compared to the Lower South Fork Boise “area of opportunity,” the high-end estimates are less costly because off-stream facilities are closer to potential diversion points.
- *Opportunities/challenges.* This area represents the most flexible combination of on-stream and off-stream storage, and represents the best flood control opportunity in the Boise River basin. Storage sites would provide a nearby day-use flat-water recreational opportunity for Treasure Valley residents that would need to be weighed against loss of free-flowing fishery recreation and habitat. Also, any new facility in this area would need to be operated in a unified manner with other existing reservoirs.

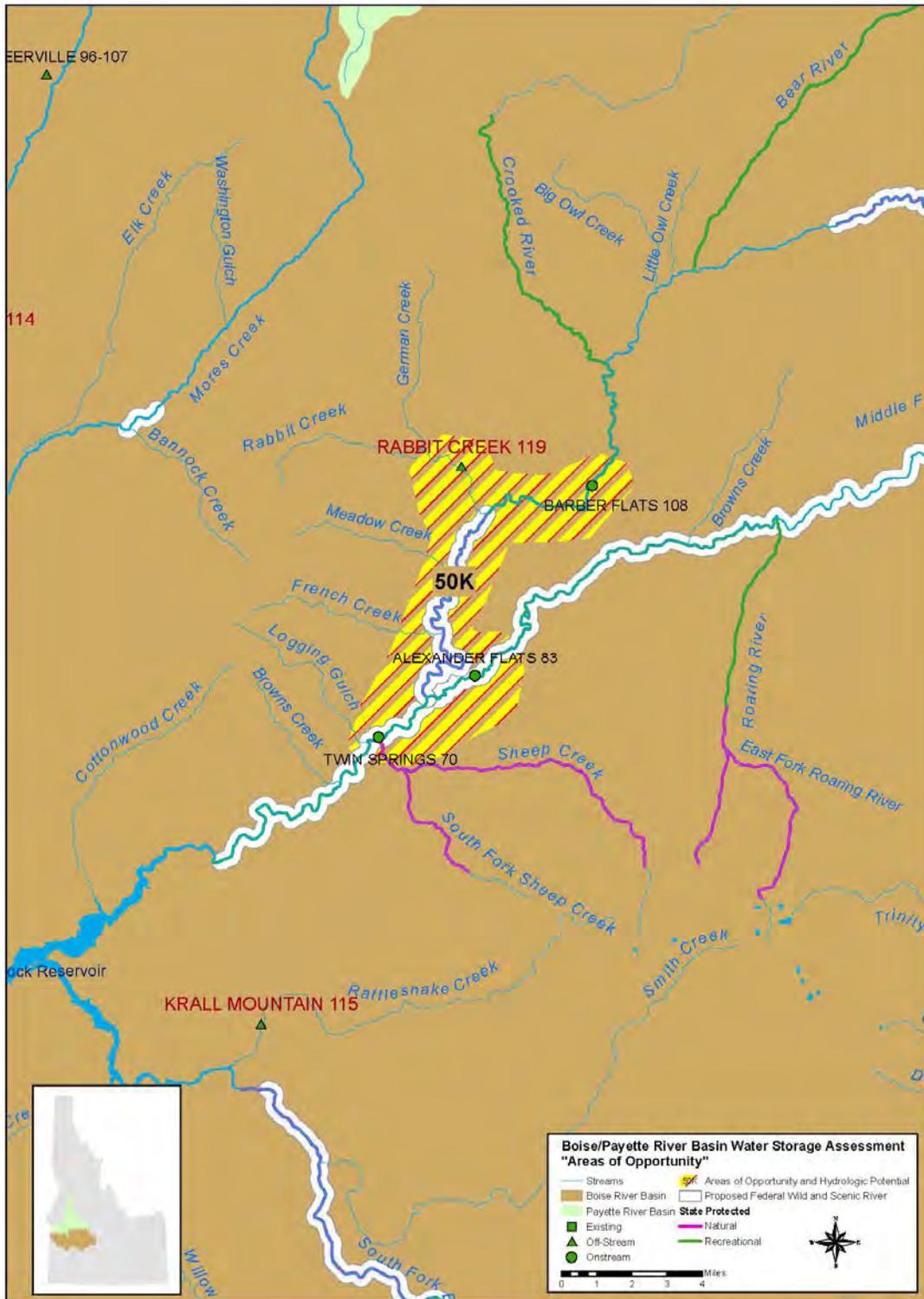


Figure 4-3. North Fork/Middle Fork Boise “Area of Opportunity”

4.2.3 Lucky Peak, Arrowrock, or Anderson Ranch “Area of Opportunity”

- *Figure.* Figures 4-4a and 4-4b show this “area of opportunity” for retrofitting existing facilities. These figures reflect the Lucky Peak/Arrowrock and Anderson Ranch components, respectively, of this retrofit “areas of opportunity.”
- *Description.* Various entities have evaluated raising the height of these dams to create an additional 6,300 AF (Lucky Peak/Arrowrock) to 29,000 AF (Anderson Ranch) of storage capacity. Any increased footprint resulting from dam raising would need to take into consideration potential effects on reaches with State Natural-designation and Federally proposed Wild and Scenic designation and bull trout habitat. Any development within this reach would need to further analyze impacts to special designations and protected species.
- *Maximum hydrologic potential.* Results of the MODSIM analysis for the South Fork Boise site (for Lucky Peak/Arrowrock) (see Figure 3-3) indicate that although approximately 60,000 AF could be stored and delivered reliably 90 percent of the time to water users, the maximum storage potential is 6,300 AF to reflect Reclamation’s analysis of the maximum raise possible at Lucky Peak/Arrowrock (Appendix D).

Results of the MODSIM analysis for the Casey Ranch site (for Anderson Ranch) (see Figure 3-3) indicate that approximately 10,000 AF could be stored and delivered reliably 90 percent of the time to water users (with respect to the 29,000 AF of additional storage evaluated by Reclamation [2005c; Appendix D], 30,000 AF could be stored and delivered reliably 60 percent of the time to water users). Depending on how a storage facility is designed and operated, additional volume could be available for flood control capacity.

- *Feasible uses.* Retrofitting existing facilities meets all uses, including DCM&I, irrigation, flood control capacity, and flow augmentation.
- *Cost considerations.* Reclamation estimated the conceptual field costs associated with raising Anderson Ranch at between \$16 and \$26 million (which would result in 29,000 AF of additional storage, plus an additional volume of flood control capacity) (Appendix D). Costs associated with raising Lucky Peak/Arrowrock dam were not included in Reclamation’s analysis (2005c).
- *Opportunities/challenges.* Retrofitting might allow for an easier permitting process, and certainly the infrastructure is in place to manage increased flat-water recreational benefits. Impacts on upstream fisheries resources (particularly bull trout) would need to be considered carefully.

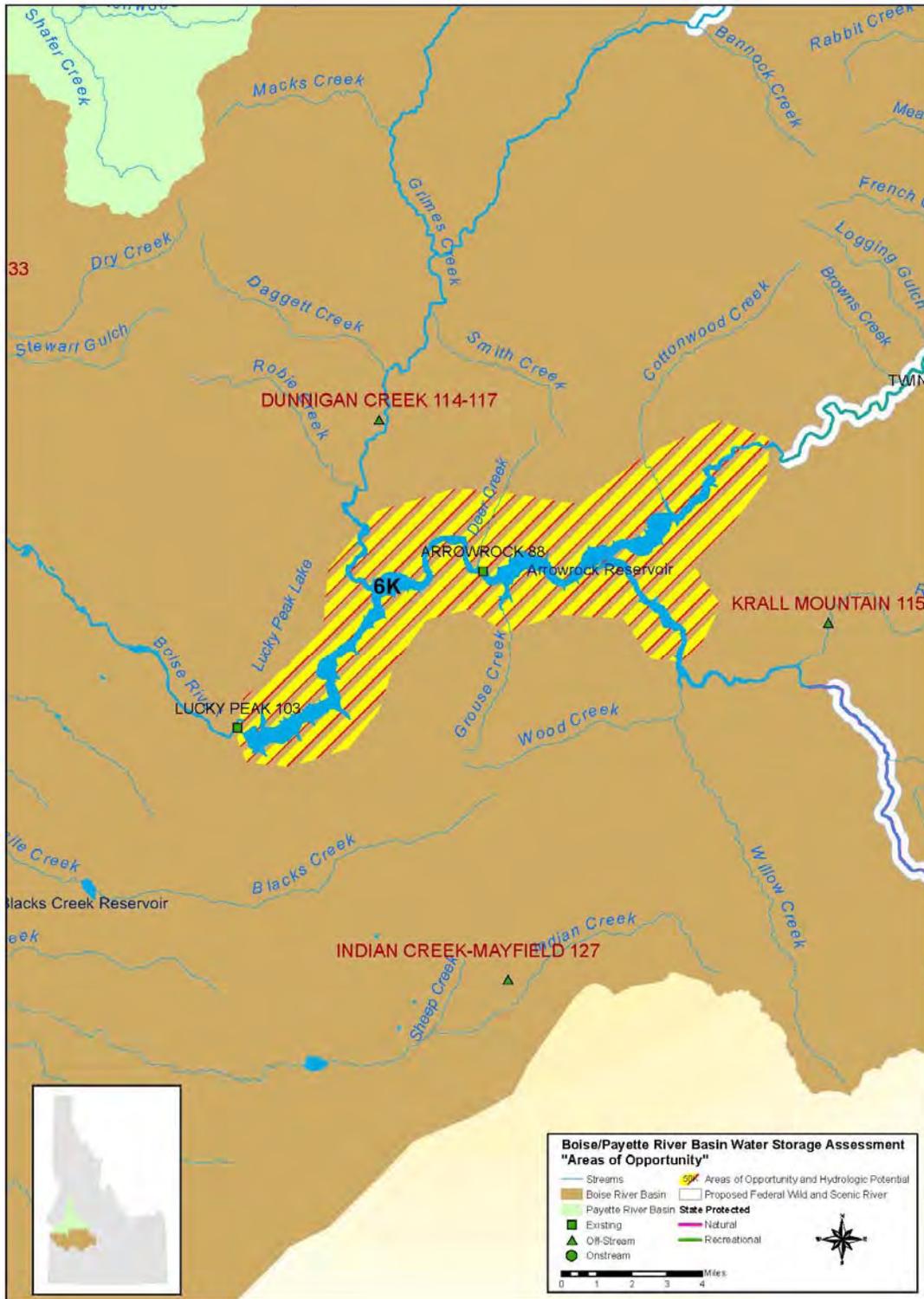


Figure 4-4a. Lucky Peak/Arrowrock “Area of Opportunity”

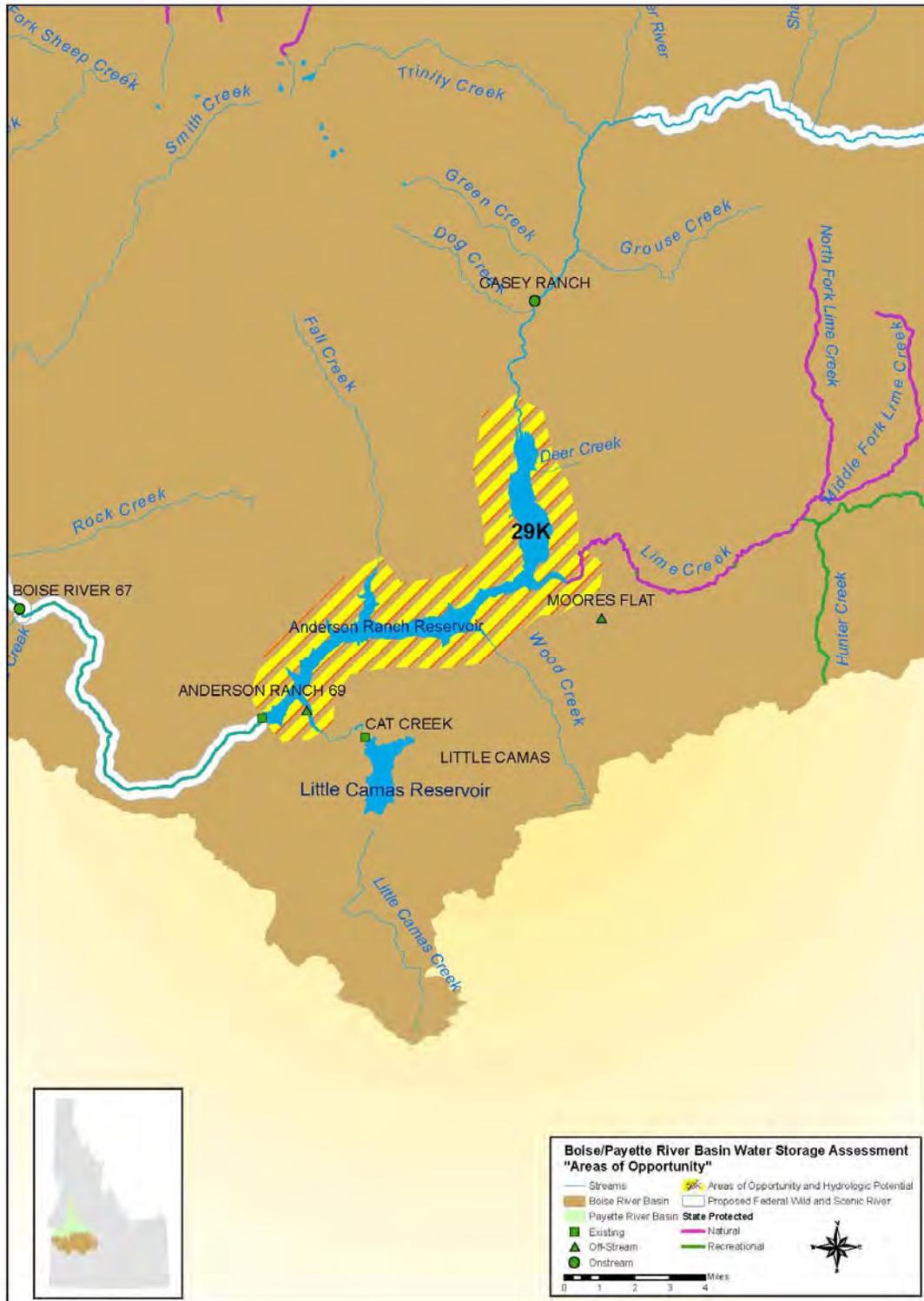


Figure 4-4b. Anderson Ranch “Area of Opportunity”

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4.2.4 Lower South Fork Payette “Area of Opportunity”

- *Figure.* Figure 4-5 shows an enlarged map of this “area of opportunity.”
- *Description.* This area could provide water to potential off-stream storage sites within the Payette River basin (previously identified sites include Wash Creek, Anderson Creek) or via a transbasin transfer to the Boise River basin (previously identified sites include Grimes Creek, Dunnigan Creek). Any of the facilities would require a diversion pipeline or tunnel to overcome hydrologic divides. Diversion would need to occur from within a State-designated Recreational River reach. Also, the upper reach of the “area of opportunity” is coincident with a Federally proposed Wild and Scenic designation. Any development within this reach would need to further analyze impact to these designations.
- *Maximum hydrologic potential.* Results of the MODSIM analysis for the Wash Creek and Big Pine Creek sites (see Figure 3-4) indicate that between 150,000 AF and 225,000 AF could be stored and delivered reliably 90 percent of the time to water users. Depending on the design and operation of a storage facility, additional volume could be available for flood control capacity.
- *Feasible uses.* Uses include DCM&I, irrigation, and flow augmentation. There may be limited flood control capacity depending on the configuration of an off-stream diversion structure and conveyance.
- *Cost considerations.* Assessment-level field (direct) construction cost estimates range between \$170 to \$1,290 million for an off-stream, 300,000-AF reservoir (the higher volume is associated with flood control capacity) (see Appendix H). Compared to other “areas of opportunity,” higher-end estimates are more costly because of the size of pumping facilities that would be necessary for transbasin transfer.
- *Opportunities/challenges.* This area represents a very flexible combination of off-stream storage, including potentially more effective coordinated water flow management with Deadwood Reservoir. This area is also close enough for weekend recreational uses; however, larger reservoir storage volumes may reduce instream flows at Letha by more than 30 percent and capital costs associated with constructing transmission lines/tunnels are expensive.

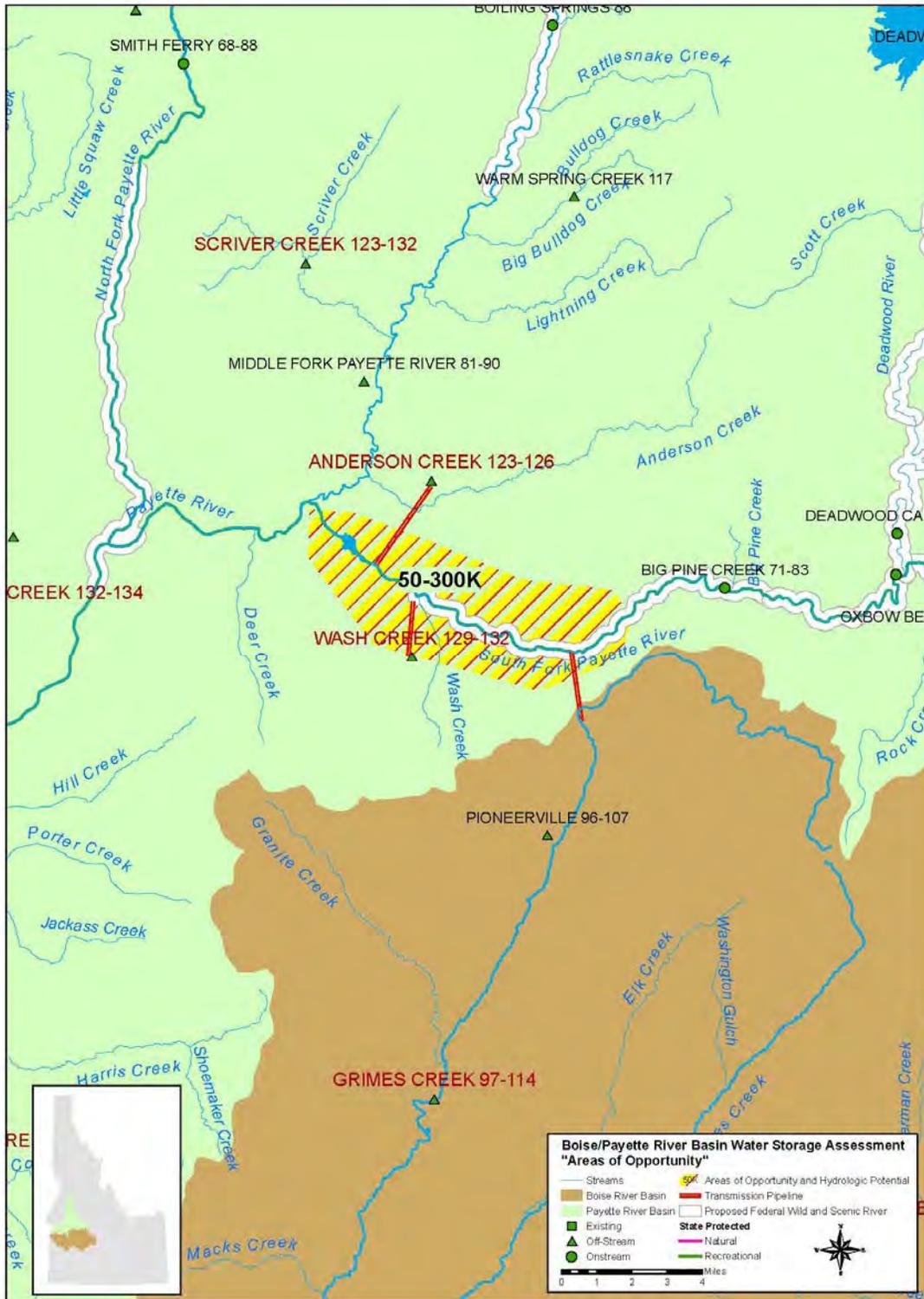


Figure 4-5. Lower South Fork Payette “Area of Opportunity”

4.2.5 Lower North Fork Payette “Area of Opportunity”

- *Figure.* Figure 4-6 shows an enlarged map of this “area of opportunity.”
- *Description.* This area could provide water to potential off-stream storage sites (previously identified sites include Tripod Creek, Schriver Creek, Upper Squaw Creek, and Lower Squaw Creek) 90 percent of the time. These facilities would require a diversion pipeline or tunnel to overcome hydrologic divides. Diversion would occur from the State-designated Recreational River reach, and the lower reach of the “area of opportunity” is coincident with a Federally proposed Wild and Scenic designation. Any development within this reach would need to further analyze impact to special designations.
- *Maximum hydrologic potential.* Results of the MODSIM analysis for the Cabarton site (see Figure 3-4) indicate that 300,000 AF could be stored and delivered reliably 90 percent of the time to water users. Depending on the design and operation of a storage facility, some of this volume could be available for flood control capacity.
- *Feasible uses.* Uses include DCM&I, irrigation, and flow augmentation. Because this area represents intrabasin transfer potential (from the North Fork Payette to Squaw Creek or Schriver Creek/Middle Fork Payette), there may be limited flood control capacity depending on the configuration of an off-stream diversion structure and conveyance. For example, water could be diverted and stored in Upper Squaw Creek during the flood season for release for Snake River flow augmentation in the summer months, and proportionately less flow augmentation water would need to be released from Cascade Reservoir.
- *Cost considerations.* Assessment-level field (direct) construction cost estimates range between \$170 to \$1,200 million for an off-stream, 300,000-AF reservoir (see Appendix H). Compared to other “areas of opportunity,” higher-end estimates are greater due to the size of pumping facilities that would be necessary for intrabasin transfer.
- *Opportunities/challenges.* This area represents a very flexible combination of off-stream storage, including potentially more effective coordinated management with Cascade Reservoir. In terms of storage on the Squaw Creek drainage, a gravity-driver conveyance pipeline from this reach of the North Fork Payette is much shorter than one identified closer to the confluence with the South Fork Payette (as shown in Mainstem Payette “area of opportunity.”) This area is also close enough for weekend recreational uses; however, capital costs associated with transmission lines/tunnels are expensive.

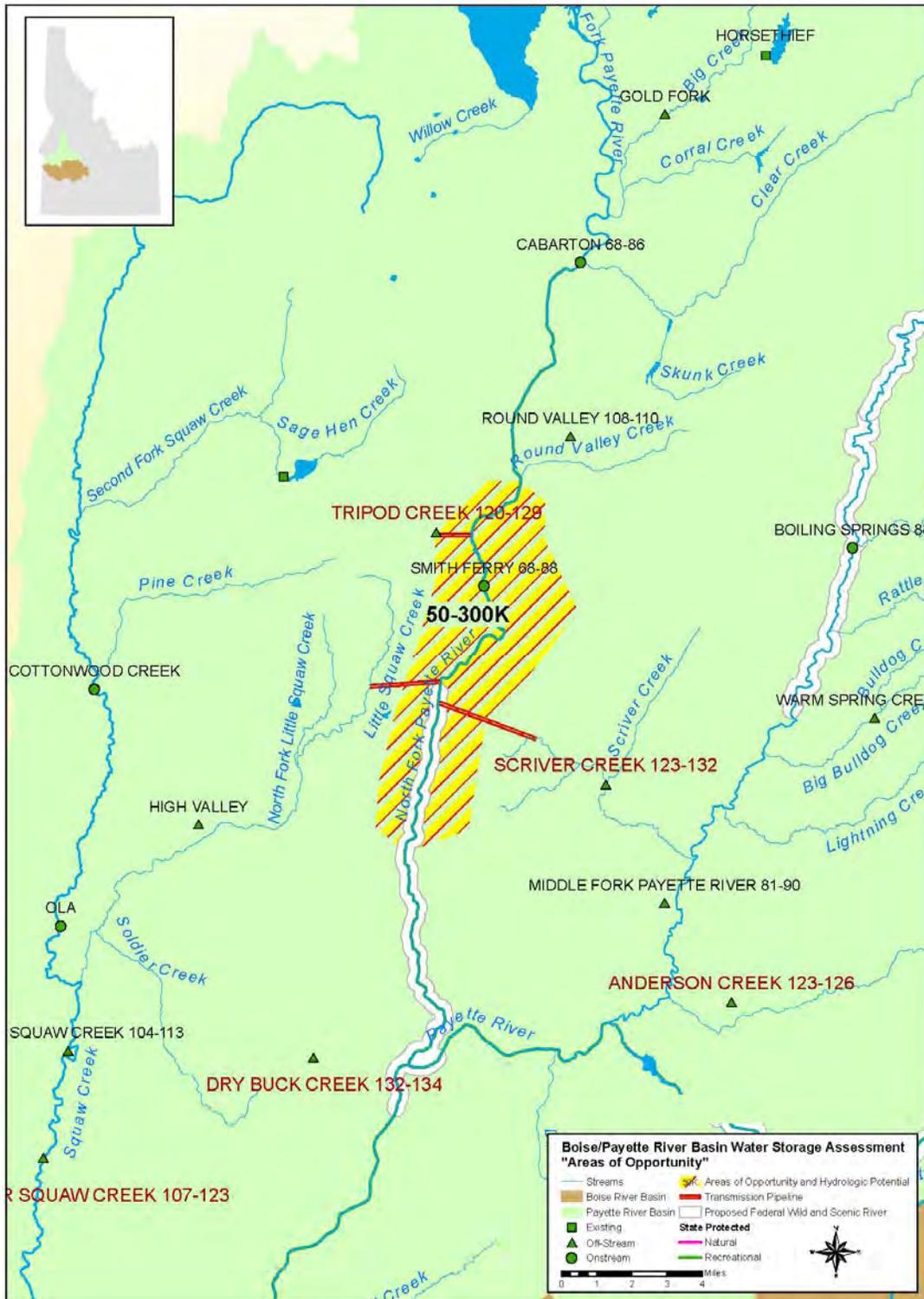


Figure 4-6. Lower North Fork Payette “Area of Opportunity”

4.2.6 Mainstem Payette “Area of Opportunity”

- *Figure.* Figure 4-7 shows an enlarged map of this “area of opportunity.”
- *Description.* Below the confluence of the North Fork and South Fork, this area could provide potential off-stream storage sites within the Payette River basin (previously identified sites include Dry Buck Creek, Lower Squaw Creek, and Upper Shafer Creek). (A transbasin transfer to the Boise River basin might also be possible to previously identified sites such as Firebird, even though the diversion would likely occur downstream from Black Canyon Dam; see Figure 4-8). Any of the facilities would require a diversion pipeline or tunnel to overcome hydrologic divides. Diversion could occur from the State-designated Recreational River reach, but any development within this reach would need to further analyze impacts to special designation.
- *Maximum hydrologic potential.* Results of the MODSIM analysis for the Upper Shafer site (see Figure 3-4) indicate that 300,000 AF could be stored and delivered reliably 90 percent of the time to water users. Depending on how a storage facility is designed and operated, some of this volume could be available for flood control capacity.
- *Feasible uses.* Uses for storage facilities within the Payette River basin include DCM&I, irrigation, and flow augmentation. Because this area represents intrabasin transfer potential (from the Mainstem Payette to Squaw Creek or Shafer Creek), there may be limited flood control capacity depending on the configuration of an off-stream diversion structure and conveyance. For example, water could be diverted and stored in Upper Squaw Creek during the flood season for release for Snake River flow augmentation in the summer months, and proportionately less flow augmentation water would need to be released from Cascade Reservoir. Uses associated with the Firebird site in the Boise River basin are limited to only flow augmentation and potentially limited irrigation, given its location in the watershed.
- *Cost considerations.* Assessment-level field (direct) construction cost estimates range between \$170 to \$1,200 million for an off-stream, 300,000-AF reservoir (see Appendix H). Compared to other “areas of opportunity,” higher-end estimates are larger because of the size of pumping facilities that would be necessary for intrabasin or transbasin transfers. Detailed information regarding how the costs were developed is contained in Appendix H.
- *Opportunities/challenges.* This area is also close enough for day trip or weekend recreational uses, with high visibility along Highway 55. In terms of storage on the Squaw Creek drainage, a conveyance pipeline from this reach of the Mainstem Payette is much longer than one identified from the North Fork Payette (as shown in the Lower North Fork Payette “area of opportunity.”) Consideration of the operational impact on Black Canyon would be critical and capital costs associated with transmission lines/tunnels are expensive.

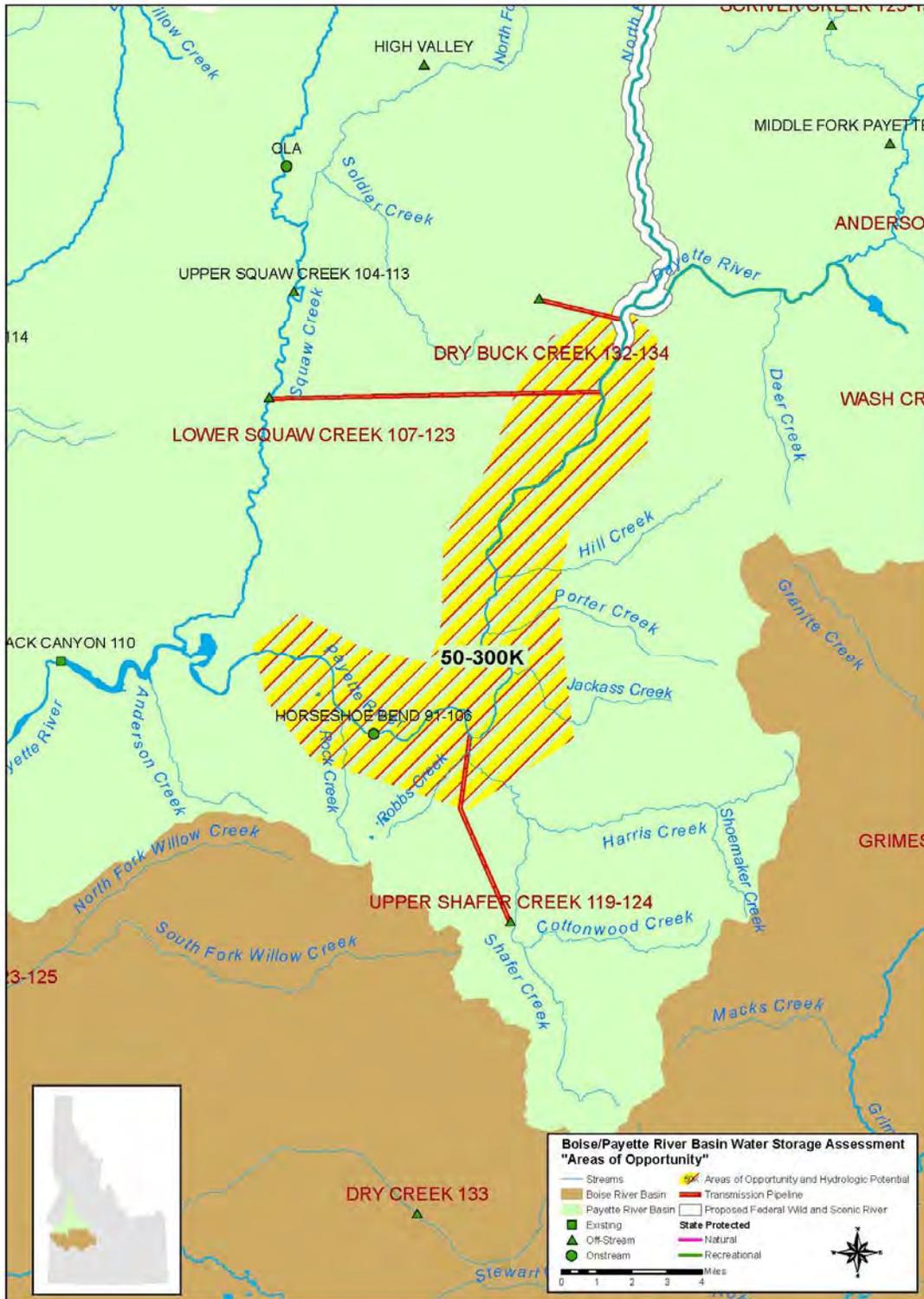


Figure 4-7. Mainstem Payette River “Area of Opportunity”

4.2.7 Lower Payette “Area of Opportunity”

- *Figure.* Figure 4-8 shows an enlarged map of this “area of opportunity.”
- *Description.* Near the mouth of the Payette River, this area could provide potential off-stream storage sites (previously identified sites include Big Willow Creek, Bissel Creek, and Sand Hollow Creek). Off-stream facilities in the Lower Payette River basin may only require a gravity pipeline. There are no State- or Federal-designated reaches within this area that would preclude diversion and/or storage.
- *Maximum hydrologic potential.* Results of the MODSIM analysis for the Upper Shafer and Bissel Creek sites (see Figure 3-4) indicate that 300,000 to 400,000 AF could be stored and delivered reliably 90 percent of the time to water users. Depending on how a storage facility is designed and operated, some of this volume could be available for flood control capacity.
- *Feasible uses.* Uses for storage facilities within the Payette River basin include primarily flow augmentation. For example, water could be diverted and stored in Bissel Creek during the flood season for release for Snake River flow augmentation in the summer months, and proportionately less flow augmentation water would need to be released from Cascade Reservoir. Because this area represents intrabasin transfer potential (from the Mainstem Payette to Big Willow Creek), there may be limited flood control capacity depending on the configuration of an off-stream diversion structure and conveyance. There is little to no use for DCM&I or irrigation water this low in the Payette River basin.
- *Cost considerations.* Assessment-level field (direct) construction cost estimates range between \$140 to \$450 million for an off-stream, 300,000-AF reservoir (see Appendix H). Compared to other “areas of opportunity,” higher-end estimates are less costly because of the smaller size of pumping facilities that would be necessary for an intrabasin transfer and the relative proximity of an off-stream facility to a potential diversion point. Detailed information regarding how the costs were developed is contained in Appendix H.
- *Opportunities/challenges.* This area is also close enough for day trip or weekend recreational uses. Consideration of the operational impact on Black Canyon would be critical.



Figure 4-8. Lower Payette River “Area of Opportunity”

4.2.8 Cascade Reservoir “Area of Opportunity”

- *Figure.* Figure 4-9 shows an enlarged map of this retrofit “area of opportunity.”
- *Description.* Reclamation (2005b) and others have identified potentially dredging sediments in Cascade Reservoir as another option to create more active capacity. This would not have any effect on the reservoir footprint, and there are no State- or Federal-designated reaches that would be affected.
- *Maximum hydrologic potential.* Dredging approximately 50,000 AF of sediments to create that much additional active storage capacity has been discussed.
- *Feasible uses.* Retrofitting existing facilities meets all uses, including DCM&I, irrigation, flood control capacity, and flow augmentation.
- *Cost considerations.* Costs associated with Cascade Reservoir sediment dredging have not been estimated.
- *Opportunities/challenges.* Retrofitting might allow for an easier permitting process, and certainly the infrastructure is in place to manage increased flat-water recreational benefits. Impacts on in-reservoir resources (aquatic and recreational) would need to be considered carefully.

4.3 Summary of Recommendations

The “areas of opportunity” approach represents a flexible, yet technically defensible, framework for further analysis. The eight “areas of opportunity” each contain several of the most promising sites and represent a starting point to focus on for future analysis. Next steps are discussed in the following chapter for the identified “areas of opportunity.”

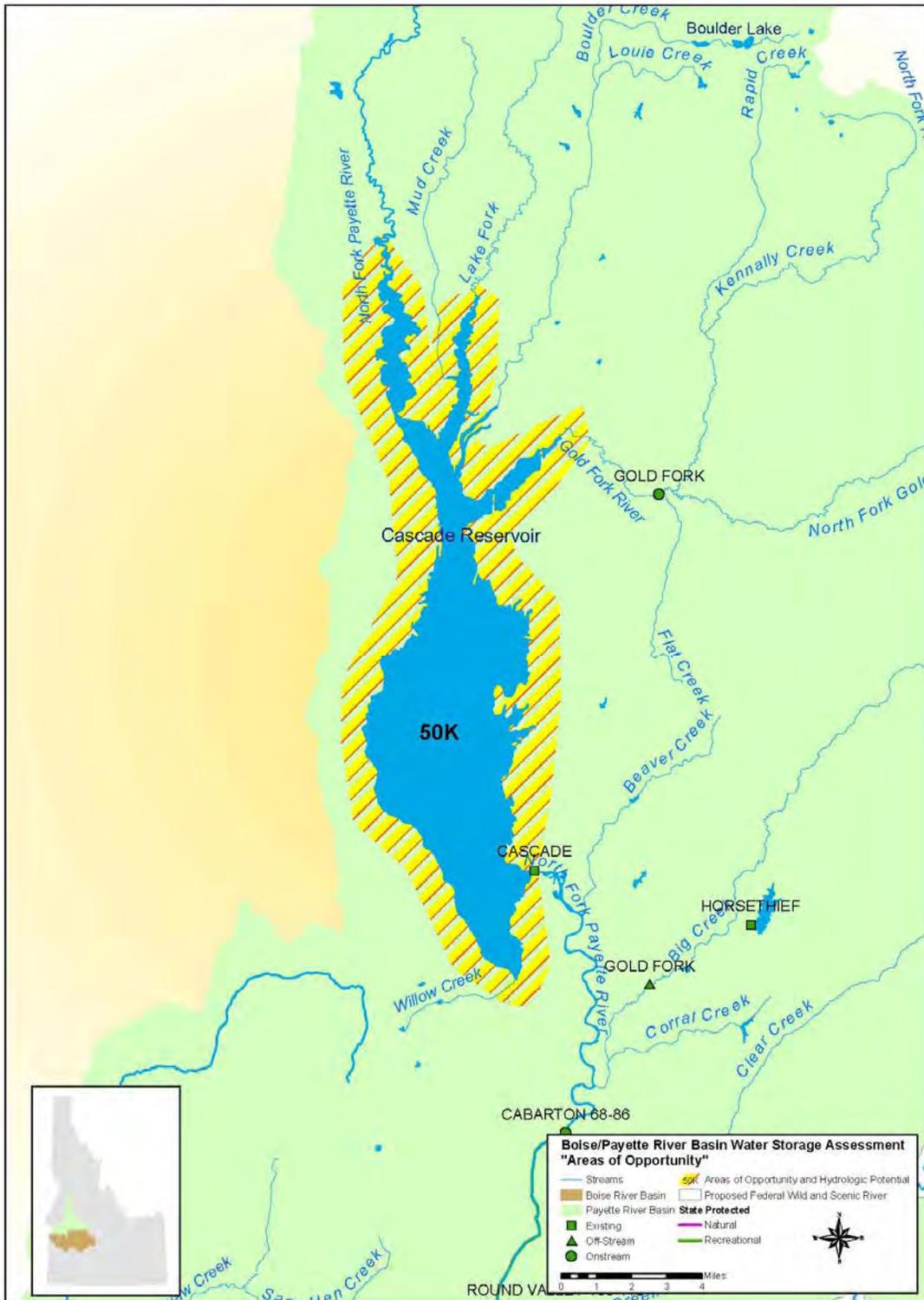


Figure 4-9. Cascade Reservoir “Area of Opportunity”

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5. Next Steps in the Federal Water Resource Planning Process

This report completes the assessment of storage opportunities in the Boise and Payette River basins. To increase or enhance water storage capabilities to meet future demands, this assessment process used existing information to narrow down 200+ previously identified storage sites to eight promising “areas of opportunity.” These “areas of opportunity” do the best job at maximizing storage potential while minimizing environmental and socio-economic impacts. If future storage projects are to be pursued, these “areas of opportunity” represent the most viable areas for further evaluation.

The Federal objective of water and related land resource project planning is to contribute to the national economic development consistent with protecting the Nation’s environment pursuant to national and environmental statutes. The next step in the Federal planning process for a water storage project typically includes a more in-depth analysis of identified opportunities (in this case, the identified “areas of opportunity”). This analysis is called an appraisal study, and it assists in determining if there is a viable solution with a reasonable Federal role.

An appraisal study includes an in-depth inventory of water and land resources in a chosen “area of opportunity;” the formulation of alternative plans; the evaluation of the effects of the alternatives; a comparison of alternatives; and the selection of a recommended action based on the comparison of alternatives. An appraisal study can be conducted under the general authority provided by the Reclamation Act of 1902. Local and State support must be clearly present in the form of agreements and cost share commitments.

If the appraisal study recommends a viable solution with a Federal role, that alternative could be evaluated at the next step, which is a feasibility study. Feasibility studies typically integrate constructability with compliance under a number of legislative and regulatory constraints, such as the National Environmental Policy Act (NEPA), USFWS Coordination Act, ESA, Nation Historic Preservation Act, and other related executive orders, environmental, and cultural resource laws.

Feasibility studies cannot be initiated until specifically authorized by Congress and require a 50 percent cost share from future beneficiaries of the project. Reclamation recognizes that given the necessary involvement of Congress in authorizing the project and necessary partnerships for funding future phases of this work, broad-based stakeholder support is required. Figure 5-1 presents the Federal planning process so that stakeholders better understand these next steps.

Federal water resource planning should be responsive to State and local concerns and should provide the opportunity for State and local agencies to participate in the planning process. It is recognized that water projects that are local, regional, State, or even interstate in scope do not necessarily need to have a large Federal role. State and local entities are free to initiate planning and implementation of water projects without Federal participation.

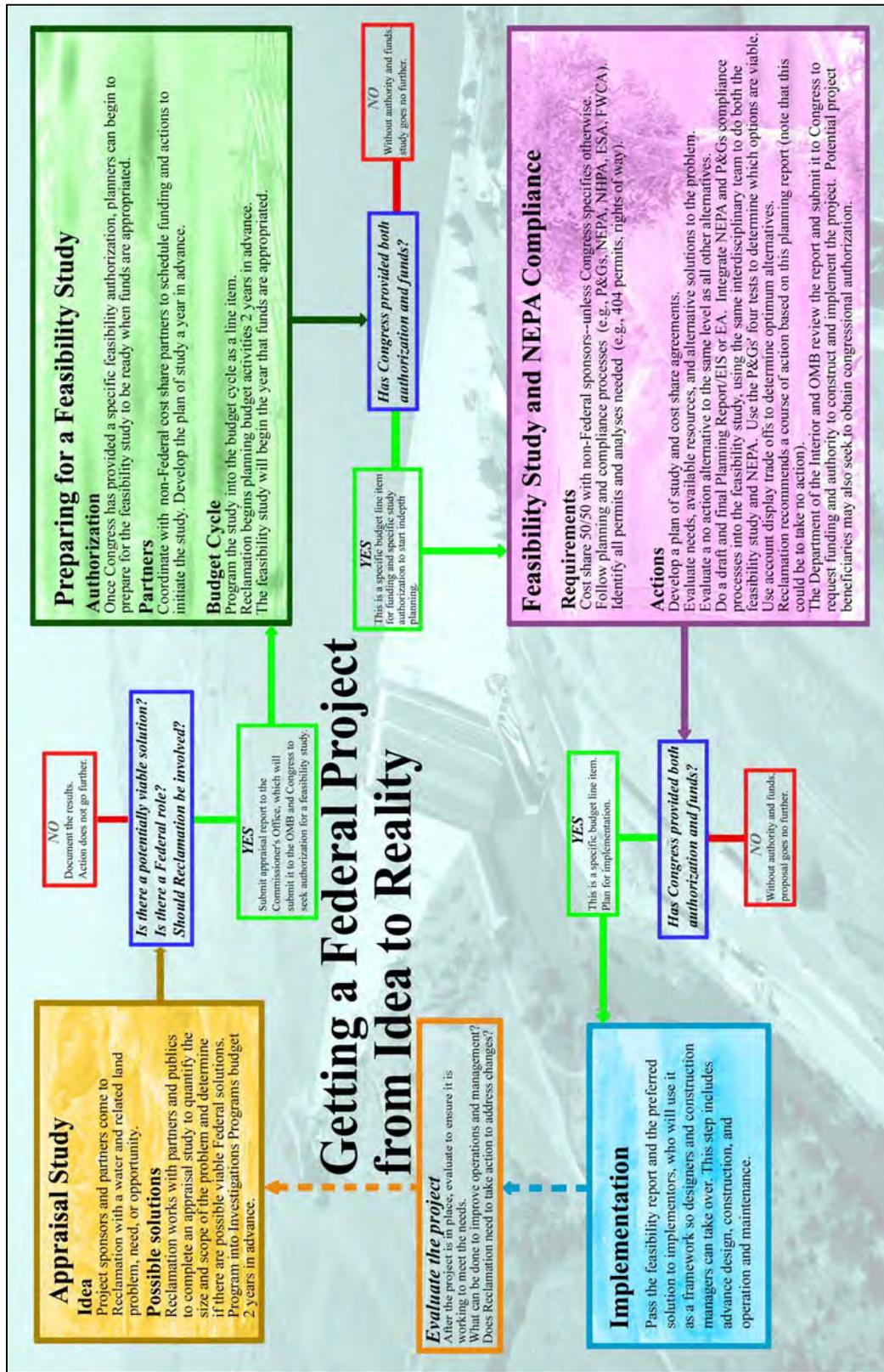


Figure 5-1. Federal Water Resources Planning Process
 Source: Reclamation

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Appendices (contained on attached CD)

- A Stakeholder Working Group Participants
- B Stakeholder Working Group Meeting Agendas, Materials, Summary Notes
- C Regional Conservation Analysis
- D Literature Review Report
- E MODSIM Model Set-up, Assumptions, and Sensitivity Analysis
- F Stakeholder Working Group Relative Importance Value Input
- G Summary of Ranking Constraint Criteria
- H Development of Construction Costs
- I Definitions
- J Land Uses for Selected Potential Candidate Sites

Appendix A

Stakeholder Work Group Participants

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APPENDIX A

Stakeholder Work Group Participants

Organizations	Representatives
Federal Agencies:	
Army Corps of Engineers, Boise	Brayton Willis, Chief, Planning Branch
Geological Survey, Boise	Kathy Peter, Director
Environmental Protection Agency, Boise	John Olson, Wetland Ecologist
Bureau of Reclamation	John Tiedeman Lesa Stark,
Bureau of Land Management	Paul Seronte
State Agencies:	
Department of Fish and Game	Jeff Dillon, Regional Fish Manager Eric Leitzinger, Environmental Staff Biologist Cindy Robertson
ID Department of Water Resources, ID Water Resources Board	Mary McGown, Water Resource Planner
Local Agencies, Districts, and Other Organizations:	
Boise Project Board of Control	Paul Deveau, Manager Tim Page
City of Boise	Chuck Mickelson, Public Works Director
Canyon Co. Planning and Zoning Commission	Jerry Glenn
Holladay Engineering Co.	Mike Holladay, Senior Engineer
Idaho Farm Bureau Federation	Dennis Tanikuni Dustin Miller
Idaho Rivers United	Kevin Lewis, Conservation Director Bert Bowler
Idaho Water Users Association	Norman Semanko, Executive Director Jonathan Parker
J.R. Simplot	Shirley Dickerson
Nampa & Meridian Irrigation District	Bryce Farris, Consulting Attorney Dan Steenson, Consulting Attorney

Payette County	Mark Shigeta
Pioneer Irrigation District Settlers Irrigation District	Scott Campbell, Consulting Attorney
Organizations	Representatives
Local Agencies, Districts, and Other Organizations:	
Trout Unlimited	Dick Juengling
United Water Idaho	Scott Rhead, Managing Engineer
Water District #63, Boise	Lee Sisco, Watermaster
Water District #65, Payette	Ron Shurtleff, Watermaster
Congressman's Otters office	Lane Jolliffe
Senator Crapo's office	Layne Bangerter

Appendix B

**Stakeholder Working Group Meeting
Agendas, Materials, Summary Notes**

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APPENDIX B

Stakeholder Working Group Meeting Agendas, Materials, Summary Notes

The stakeholder working group met six times between August 2005 and March 2006. The general content of each meeting is summarized as follows and agendas and meeting notes are provided following this summary.

Meeting 1

- Background, purpose, and scope of the assessment
- General discussion of water storage needs and target storage volumes
- Roundtable review of storage opportunities to be considered and issues to be addressed
- Identification of useful data sources, past studies, and other stakeholder input

Meeting 2

- First-level reservoir site screening: Initial criteria and methods applied to filter more than 200 opportunities; review of the ~60 opportunities remaining
- Opportunities other than new reservoirs: Initial discussion of potentials for other types of storage (e.g., aquifer storage, role of canal systems, and/or administrative/operational solutions)
- Storage needs and benefits analysis: First estimates of volumes for new storage facilities
- Literature review: Second call for relevant sources; schedule for completion of a literature review summary

Meeting 3

- First-level reservoir site screening: New results based on discussion at Meeting 2
- Second-level reservoir site screening: Initial discussion of constraint criteria
- Opportunities other than new reservoirs: Completion of perspectives on potential for aquifer storage, operations solutions, etc.
- Storage needs and benefits: Refined analysis of potential storage volume needs—consumptive uses, flood control, flow augmentation, etc.
- Literature review summary: Confirmation of completeness

Meeting 4

- Hydrologic analysis: Work toward estimating volumes of water available for new storage
- Second-level reservoir site screening: Full methodology—definition of reservoir conceptual “footprints,” final constraint criteria lists, SWG input on the relative importance among the criteria, and techniques to be used in assessing criteria performance

Meeting 5

- Hydrologic analysis: Results/findings from modeling effort—maximum watershed yields and reservoir volumes
- Second-level reservoir site screening: Results of constraint criteria analysis—one “shortlist”
- Influence of needs/benefits and land ownership on selecting final recommendations
- Proposed shortlist of storage opportunities based on hydrology, constraints, and needs/benefits analysis
- Assessment Report product: A draft outline

Meeting 6

- Draft Assessment Report: SWG comments, edits, suggestions

RECLAMATION

Managing Water in the West

Boise/Payette Basin Storage Assessment

Stakeholder Working Group: Meeting 1 Agenda

August 23, 2005

9:30 am Introduction

- Opening statement—welcome, brief introduction and overview
 - Genesis of the study
 - Overall purpose and scope
 - Role of the working group
- Introduction of Reclamation team members
- Roundtable introductions and opening remarks of working group members
 - Who they represent
 - Initial comments—expectations, issues and opportunities
- Purposes of the Assessment (begin PowerPoint show)
- Meeting objectives
- Review of agenda and handout materials

9:50 am Planning Team Presentation (PowerPoint show)

- **Study Scope and Process** (20 minutes)
 - Scope & Sideboards
 - geographic scope
 - level of detail; use of existing data
 - types of storage to be considered
 - options outside the scope of this study (e.g. demand-side actions)
 - Participants and roles
 - Roles of Reclamation, Stakeholder working group, Consultant team—as the primary elements in the Assessment
 - Other channels for stakeholder input and how that input will be used
 - Work plan (work steps and products)
 - This is to be more than just a simple listing of tasks and products. The intent is to provide insight into the process/methodology we will use, covering such items as the need/rationale for selecting a target volume, definition of options vs. alternatives, definition of evaluation factors vs. criteria, our assessment methods (including possible use of criteria ranking/relative importance), and general approach to dealing with differing points of view (e.g. ultimate recommendations could reflect differing perspectives).

- Stakeholder Working Group—process and role
 - Group composition
 - Level of participation—all steps in the process
 - Objective—agreement on final recommendations
 - Role of facilitator
 - Role of planning team
- Schedule
- Conclusion and Q & A (Q and A only on what has just been presented)
- **First Steps: Background & Starting Points** (20 minutes)
 - Introduction
 - Boise/Payette hydrology primer
 - Existing facilities/allocations
 - Water demands/target storage volume
 - Consumptive demands
 - Non-consumptive demands
 - Potential target storage volume(s) based on Consumptive Demand projections
 - Candidate storage options
 - Prior studies
 - Full range of potential storage options identified to date (all categories: On-stream, off-stream, new facility, modification of existing facility, distributed-including ASR, and Reclamation policy/project purpose change
 - Short list of options already identified as candidates to be considered in this study
 - Role of the work group in defining final short list
 - Q & A (limited to the “First Steps” information presented)

10:20 am Working Group Discussion and Input

- **Introduction** (5 minutes max.)
 - Topics to be addressed today
 - General protocol for discussion and role of facilitator (based on initial sense of the group, I will reiterate some of the stuff about behavior, respect, pontificating, wasting time, etc.—I will have covered this somewhat already during my part of the presentation)
- **Target Storage Volume** (20 minutes max.)
 - Range of possibilities/needs—roundtable review of possible target volumes, including rationale and basis
 - Discussion and selection of target volume, if possible, or
 - Specific method/source for defining this target prior to next meeting, (including necessary homework by group members)
- **Storage Options to be Included in the Assessment** (60 minutes)
 - Reiteration of categories into which options might fall: on-stream, off-stream, distributed (e.g. canal actions, ASR).
 - Reiteration that we are approaching development of our shortlist of candidates from two directions: The full laundry list from prior studies, and the list compiled to date for this study from stakeholders and agency personnel.

- Roundtable commentary by Working Group members (generally uninterrupted)—[1] specific options they believe need to be considered and [2] options which should not be considered, in either case including rationale and citing any supporting documentation.
- Open discussion and Q & A focused on the full list emerging from roundtable.
- First shot at a preliminary list of options to be carried forward into this Assessment, and, to the extent necessary.
- Plan of action to finalize the list of candidates for review at next meeting (including homework by group members).

- **Working Group Contribution to Literature Review Report**

(5 minutes)

- Identification of documents/sources to be included in the literature review, and arrangements to get access to these.

11:45 am Wrap up, Next Steps, & Questions/Answers

- Review of action items (and responsibilities) emerging from this meeting
- Date and time of next meeting (confirm best time of day)
- Content of next meeting
- Additional questions, answers, and discussion

Noon Adjourn

RECLAMATION

Managing Water in the West

Boise/Payette Basin Storage Assessment

Meeting Summary: Stakeholder Working Group Meeting 1

August 23, 2005

I. Introduction

This document is a summary of the first meeting of the Stakeholder Working Group for the Boise/Payette Basin Storage Assessment. The meeting was held August 23, 2005, from 9:30 AM to Noon, at Reclamation's regional offices in Boise, Idaho. The meeting agenda was sent to all stakeholders prior to the meeting; this summary is organized according to the headings/topics of that agenda.

II. Meeting Attendees

Reclamation Planning Team:

Lesa Stark Reclamation--Snake River Area Office Planning Program Manager	John Petrovsky John Petrovsky Associates
John Tiedeman Reclamation--PN Regional Office, Activity Manager	Tom Haislip CH2M HILL
	Sherrill Doran CH2M HILL

Stakeholder Representatives:

Bryce Farris Ringert Clark Chartered	Cindy Robertson Idaho Department of Fish and Game
Norm Semanko Idaho Water Users Association	Eric Leitzinger Idaho Department of Fish and Game
Ron Shurtleff Water District 65	Jeff Dillon Idaho Department of Fish and Game
Lee Sisco Water District 63	Marc Shigeta Payette County
Chuck Mickelson City of Boise	Mike Holladay Holladay Engineers
Scott Rhead United Water	Dick Juengling Trout Unlimited
Shirley Dickerson J.R. Simplot	Kevin Lewis Idaho Rivers United
Kathy Peter U.S. Geological Survey	Bert Bowler Idaho Rivers United
Brayton Willis U.S. Army Corps of Engineers	Dennis Tanikuni Idaho Farm Bureau
John Olson U.S. EPA	Paul Deveau Boise Project Board of Control
Mary McGown Idaho Department of Water Resources	Debbie Willis U.S. Army Corps of Engineers

III. Meeting Summary

Agenda Item 1: Introduction

Lesa Stark began the meeting with a welcome and brief overview of the genesis, purpose and scope of the study and the role of the Stakeholder Working Group (SWG). She noted that Congressman Butch Otter provided the impetus for this study; it is part of an effort that began in 2004 to explore ways in which the ever increasing and often competing demands for water can be met in the region. The purpose of this assessment process is to explore the potential for additional water storage capacity in the Boise and Payette Basins, to identify specific opportunities/approaches, and to evaluate them based on a common set of criteria to be developed by this SWG. The intent is to determine if and where there are plausible opportunities that warrant further, more detailed study. This assessment will be at a reconnaissance level (based on existing data). To the extent that potentially feasible and acceptable options emerge from this assessment, more detailed (appraisal-level) studies would follow.

Lesa then introduced the Reclamation planning team for the assessment effort. For Reclamation, Lesa will serve as overall manager and John Tiedeman will manage the day-to-day activities of the process. Contractors brought on-board to assist Reclamation include CH2M Hill and JPA. John Petrovsky of JPA will facilitate the stakeholder process and oversee the criteria development and options/alternatives screening process. Tom Haislip of CH2M has been involved in this process from the beginning and will continue to provide senior level direction. Sherrill Doran will be the project manager and technical lead for CH2M Hill, responsible for the full technical scope of the study and preparation of deliverables.

Lesa then turned the meeting over to John Petrovsky, who asked that the introductions continue with each stakeholder representative providing a brief overview of who they represent and the highlights of their perspectives and expectations related to this study process.

These introductions and initial statements portrayed well the range of stakeholder perspectives, interests and issues which will influence the process and outcome of this assessment. Highlights include:

- Meeting the needs of both agricultural/irrigation and municipal/DCM&I providers alike
- Role of and interaction between surface and groundwater in meeting water supply needs
- Water rights and water accounting concerns
- Effects on hydropower and aquaculture
- Flood control perspectives
- Water quality perspectives
- Potential impacts on aquatic species and fisheries resources
- Potential impacts on recreation, sportsman's groups, etc.

John then wrapped up the Introduction portion of the meeting with two slides, focused respectively, on the purposes of the assessment overall and the purposes/goals of this first SWG meeting:

- Purposes of the assessment: Reiterating what Lesa has noted earlier, this assessment is:
 - Part of an overall effort to investigate water supply opportunities
 - Specifically focused on the potential for new or enhanced storage options
 - Intended to recommend a short list of options for appraisal/feasibility-level studies
- Purposes of the meeting:
 - Introduce everyone to the study, including the scope, process, and products of the effort overall and the role of the SWG.
 - Present background information and get SWG input on [1] quantifying projected increases in water demand and other “stresses” on the supply system which could warrant development of

additional storage capacity (the intent being to specify a “target volume” for use in defining and comparing potential storage options—i.e. how much storage do we need?), [2] the starting “universe” of storage options which should be considered, derived from previous studies of possible storage sites/projects and from current agency/stakeholder concepts about specific options which warrant attention (the intent being to be very inclusive initially before starting to narrow down the list, and to understand the full range of possible solutions—e.g. new facilities or modifications to existing facilities, on-stream or off-stream, aquifer storage & recovery (ASR), canals as storage, and non-structural approaches via reallocations, transfers, etc.), and [3] sources of data/information relevant to the study.

Agenda Item 2: Planning Team Presentation

The Planning Team Presentation was composed of two parts, with John presenting a series of slides addressing the study scope and process and the role of the SWG, and Sherrill following with slides describing background information and starting points related to basin hydrology, demand projections, and potential storage options. Highlights of the slide presentations are noted below, along with summaries of the Q&A discussions that followed each part. A hard copy of the full slide (PowerPoint) show was provided to all attendees (note: it was requested and agreed that future slideshow handouts be printed to be more readable—e.g. one or two slides per page rather than three—and that a larger copy of the schedule diagram in the show be provided to all SWG members).

Part 1: Study Scope and Process

- **Scope and Sideboards:** John reiterated that the assessment will be a reconnaissance level of detail, relying entirely on existing data; no data gathering or site-specific studies would be conducted at this point. He also emphasized that the assessment is focused exclusively on water storage possibilities as a component of an overall approach to meeting water needs. Demand-side actions such as conservation and reuse, while certainly an important consideration in any comprehensive solution, are not a part of this study effort.
- **Participants and Roles:** Reclamation, the SWG, and the consultant team are the primary participants in conducting this study. John noted that stakeholder outreach and participation beyond the SWG would take two forms: [1] each SWG member is responsible for communicating with and drawing expertise from within their agency/organization or constituency, and [2] other agencies, organizations or individuals will be able track the process and provide input via Reclamation’s mailing list, web page, and email for this effort.
- **Work Plan:** As currently conceived, the initial steps in the assessment process (and the substance of the first two SWG meetings) are:

[1] Settle on a target volume for use in comparing alternatives against one another (i.e. it is expected that various potential storage sites/options will vary considerably in their storage capacities; if we use the target volume approach, we can identify alternatives, some perhaps composed of multiple sites/techniques, each of which meets that target. Then we will be comparing “apples to apples” when we do the criteria analysis).

[2] Define the full range of possible storage sites, options or techniques which should be considered and then do an initial “exclusionary” criteria screening of these to eliminate those that are clearly infeasible. In the latter regard we are looking for only those criteria, based perhaps on hydrology,

geology, or legal status, that are essentially indisputable (i.e. “on-off switches” with little or no gray area).

Subsequently, we will work on identifying and applying a full range of evaluation criteria to compare options which survive the exclusionary criteria screen against one another. As we work through that process, we may end up identifying differing points of view regarding which criteria are most important in making decisions about options that warrant further study. We are prepared to embrace and report on these differences as necessary. At this point in the process of seeking solutions, we do not need to find an absolutely “one size fits all” set of options.

- **Stakeholder Working Group:** The SWG has been formed to represent the full range of interests and points of view. The study process is designed to have SWG involvement in each step along the way. Each agency/organization on the SWG is requested to select one person who will speak for them throughout the process. Certainly, multiple representatives can attend the meetings, but we ask that only one serve as spokesperson to keep things manageable and equitable.
- **Schedule:** The proposed schedule targets completion of the assessment in March 2006. SWG meetings will be held once per month for the first 4 months of the effort (August through November). These meetings will cover the target volume, exclusionary criteria screening, and evaluation criteria screening steps in the process. Preliminary results of the assessment will be discussed with the SWG in January 2006 ahead of preparing the final report.

Highlights of the Q&A session which followed John’s presentations include:

- Some SWG members noted that the demand side of the equation needs to be addressed in some fashion (i.e. it is difficult to pursue the question of additional storage without exploring the role that conservation or reuse could play in mitigating the need for storage). John responded that the demand side considerations certainly need to be part of the big picture in finding solutions to water supply needs. However, we are trying only to define what might be possible in terms of new storage capacity as a way of informing decision-making during that big picture process further down the road.
- Will there be NEPA compliance associated with this assessment? No, NEPA is not applicable at this stage in the process. We will not be making decisions about specific projects, only suggesting options which might warrant further study. However, assuming that the potential exists for one or more of the options identified in this assessment to move forward and become real project proposals in the future, our intention is that this screening process be rigorous and defensible as part of the Alternatives discussion in NEPA documentation that would then be necessary.

Part 2: Background & Starting Points: Target Storage Volume & Candidate Storage Options

Background: Sherrill began with a number of slides generally portraying [1] surface and groundwater hydrologic conditions in the two basins, including conceptual water balance, runoff patterns/seasonality, and groundwater level trends, and [2] existing storage facilities and the allocation of water stored in these facilities. Of particular importance and relevance to this assessment were the following points:

- The Payette basin generally receives more precipitation than the Boise basin and the water storage and distribution system is less highly managed when compared with the Boise. However, present and future demands for water are significantly higher in the Boise basin.

- Most of the water supply in the both basins is already allocated. There is not a lot of excess capacity to meet future demands given current contractual constraints.
- The ability to capture and store additional water is limited by requirements for minimum fish flows, maintenance flows, flood control and annual refill of existing reservoirs.
- In the Boise basin, use of groundwater to meet increasing demand is becoming limited due to both quantity and quality issue.

Water Demands/Storage Volume Targets: Sherrill then addressed the question of water demand/use factors that can influence how much additional storage volume might be needed or desired (i.e. how much storage should we be looking for?). These factors could include growth in consumptive demands (DCM&I and irrigation) and/or increased provision, maintenance or reliability of non-consumptive uses such as fisheries/flow augmentation, recreation, flood control, groundwater recharge and water quality (TMDLs).

The following data was provided regarding projected growth in consumptive demands:

- In the Boise basin, DCM&I demand is projected to grow by up to 74% (another 96,000 AF) by 2025. Most DCM&I uses currently are met by groundwater and some of the increased demand may also be met by that source. However, as noted earlier, there will be increasing limitations on the capacity of the groundwater supply to meet increased demand.
- In the Payette basin, growth in DCM&I demand is expected to be 42% (another 13,000 AF) over the same period. A good portion of this demand will probably be met with groundwater.
- Demand for irrigation water in the Boise basin will be influenced by the extent to which agricultural land is converted to urban uses. This conversion trend would likely reduce demand for irrigation water (i.e. converting water use from irrigation to DCM&I). However, additional acreage could also be brought under cultivation, increasing irrigation water demand. A rough IDWR estimate of the net result of these factors between now and 2050 suggests the potential for a net increase in irrigation water demand of 25,000 AF. Given trends in DCM&I demand and consequent increasing pressure on groundwater, it is unlikely that any increase in irrigation demand would be met by groundwater.
- No projections have been found to date addressing trends in irrigation demand in the Payette basin.
- Taking the above projections and estimates, a ball-park figure for the increase in consumptive demand over next 20+ years would be >134,000 AF. Most of this would occur in the Boise basin.

In terms of non-consumptive uses, a dominant factor in both basins is fishery flow augmentation. Reclamation has a goal of providing up to 487,000 AF/yr (through rental and in-stream flows) from the Snake River system statewide. This goal is not met during drought conditions. The contribution of the Boise and Payette systems to meeting this goal ranges from 200,000 AF in normal and high water years, to 30,000 AF in dry years.

Other non-consumptive demands which could influence the need or desire for storage over time are:

- Recreation (i.e. maintaining reservoir levels and stream flows to support boating activities)

- Additional flood control requirements, especially upstream of urbanizing areas
- Increased stream flows to improve local water quality conditions for aquatic species
- Groundwater recharge programs
- Note: One SWG member suggested that channel maintenance, in the form of spring freshets, may also be a needed/desired use. However Reclamation noted that this is more in the realm of operations changes rather than storage, and would be addressed in a different venue.

Candidate storage options: Sherrill indicated that we would be approaching the task of identifying potential storage locations/techniques from two directions: [1] taking a look at all previous work on this topic (i.e. the more than 60 previous studies on Boise and Payette water storage options prepared between 1938-2004), and [2] polling agency personnel and the SWG to identify options that they see as most promising, including locations or techniques not previously studied.

In the first regard, prior studies have identified approximately 200 potential storage locations. These include primarily new storage sites (both on-stream and off-stream), but also encompass some examples of modifications to existing reservoirs (e.g. Lucky Peak, Arrowrock, and Anderson Ranch). Sherrill provided a map and associated tables illustrating the name and location of each of these options. She indicated that good information exists for some sites while little to no information is available for others.

In the second regard, Reclamation personnel have contributed an initial list of those candidate storage options they think most warrant assessment. These include:

- **Physical/mechanical options on in the Boise Basin:**
 - On-stream:
 - Add fixed flashboards to existing reservoirs
 - Raise Anderson Ranch Dam
 - Twin Springs
 - Off-stream:
 - Dunnigan Creek
 - Trapper Flat
 - Rabbit Creek
 - Coyote Butte
 - Lake Lowell
 - Hubbard Dam
 - Line Sand Hollow Canal
 - Manage canals for ASR
 - Line/pipe Boise canals
- **Physical/mechanical options on in the Payette Basin:**
 - On-stream:
 - Gold Fork
 - Off-stream:
 - Blacks Creek
 - Upper Squaw Creek
 - Lower Squaw Creek
- **Operational/political options:**
 - On the Boise, buy out irrigation water and use for DCM&I

- On the Payette, lower the conservation pool at Cascade (i.e. some portion of 250,000 AF of uncontracted space) and designate for DCM&I

Given the above as a starting point, Sherrill indicated that the next steps would be to [1] fill out list of options to include other approaches not previously considered, such as transfers and exchanges and/or groundwater storage, and [2] conduct an initial screening of all options to eliminate those that are clearly infeasible or unacceptable. In the latter regard, the initial screening would be based only on fundamental exclusionary criteria derived from such factors as refill capacity/hydrology, geography/topography, minimum volumes, legal status, etc. Sherrill concluded her presentation by reiterating that getting SWG input on both of these perspectives was an objective of this meeting.

Note: The Q&A discussion which ensued following Sherrill's presentation focused immediately on the question of target storage volume(s), and is thus incorporated into the summary of Agenda Item 3, below.

Agenda Item 3: SWG Discussion and Input

Target Storage Volume

SWG discussion of the target volume concept quickly demonstrated the complexity and sensitivity of trying to settle on a single number for future storage needs. Key points made in this regard include:

- Several SWG members echoed the concern expressed earlier that the role of conservation and reuse (e.g. gray water) should be considered in trying to reach an accurate projection of future consumptive demand growth. Even though these aspects of water supply planning are not within Reclamation's authority, they should still be recognized in some fashion when trying to quantify the volume of potentially needed additional storage. (Note: In this regard, some SWG members recalled that Senator Craig had previously asked for and Reclamation had done a study along these lines. The recollection was that this was an optimization study and, ironically, one of the criticisms of the study was that it did not address the potential role of additional storage. It was agreed that Reclamation would provide access to this study (at least the PowerPoint summary of it) on the Assessment web page. The PowerPoint summary could also be brought to a future SWG meeting if needed).
- There is a complex relationship between growth in DCM&I demand and the degree to which this demand could be met by conversion of irrigation water to DCM&I use (especially irrigation water currently pumped from groundwater). Also, as farmland is converted to urban uses, irrigation water is often simply converted from use on cultivated crops to use on urban/suburban landscapes; some irrigation districts have embraced this change, others have not. In this regard, some assert that there is a net reduction in water need, because urban/suburban uses require less irrigation water per acre than agriculture. This assertion is debatable; the reality is quite variable to the point that there may be no real reduction in irrigation water demand. Others assert that water needed to irrigate urban/suburban landscapes may cause a net increase in agricultural water needed to be provided. These factors all must be considered in attempting to quantify real growth in consumptive use demand.
- This assessment of potential for additional storage should not be limited to just looking at growth in consumptive demands. Additional flow in local streams could substantially benefit aquatic species/fisheries. Perhaps additional storage can contribute to more efficiency and/or reliability in meeting downstream flow augmentation goals. It is even conceivable that more of the system-wide flow augmentation goal could be met from the Boise and Payette systems, thus freeing up water for

other uses elsewhere in the state. We should look at the bigger picture, perhaps all the way to seeing if the entire 487,000 AF of flow augmentation could be met from these systems. Reinforcing this perspective, it was noted that the Galloway project is again being looked at in Weiser Basin, and the project is being defined as multi-objective, involving inter-basin transfers and multiple uses including DCM&I, flow augmentation, and flood control.

- Another potential role for additional storage capacity is flood control. The Corps of Engineers has done some work on additional flood control needs/requirements.

Given these concerns, it was agreed that the planning team would take another look at the concept of/need for establishing one single target volume for use in this assessment. John reiterated that the primary reason such a number was being sought was for use in comparing potential storage alternatives against one another (i.e. by assembling alternatives which each totaled the same volume of storage, a significant variable could be neutralized, making comparative analysis less complex).

For the next meeting it was agreed that the planning team would look at the idea of carrying forward multiple volume targets, perhaps categorized into the major needs/uses identified in discussion: DCM&I, irrigation, flow augmentation, and flood control. Also, where uncertainty exists, any or all of these components could be defined more as a range, rather than a single number (e.g. perhaps the DCM&I component could be expressed as a range, with the lower number anticipating the role of conservation and reuse, and the higher number reflecting less of a role for these variables).

Storage Options to be Included in the Assessment

The SWG was asked to provide initial impressions of the array of potential storage options presented by Sherrill, from the standpoints of [1] options listed which are clearly not feasible and should be eliminated early, or [2] options which should be considered but are not yet shown on the lists. Input provided is summarized below and it was agreed that SWG members would consider these questions further and provide more considered responses within the two weeks following the meeting.

- ASR/groundwater recharge should be given serious consideration.
- Especially for options in the Payette, we need to factor in how we move the water to where it is needed (i.e. the greatest growth in demand is expected to be in the Boise).
- Getting the water to where it is needed can take different forms, from physical storage/conveyances to transfers, exchanges and reallocations. We should definitely look at transfers, exchanges and reallocations (i.e. using existing storage in different ways).
- A good place to start is looking at the potential to modify/expand existing facilities. For example, we should look at raising Lucky Peak.
- A bad place to start is new in-stream reservoirs. From the standpoint of environmental impact, this type of facility is the least desirable and, if certain resources (e.g. bull trout) are present, least feasible.
- Take advantage of existing “plumbing”; look at trades, partnerships, off-stream storage, covered reservoirs.

Initial SWG input was also requested regarding the criteria which would be most relevant in the first, exclusionary screening of the options. Suggestions in this regard included (again, with additional thoughts to be provided during the following two weeks):

- Hydrology is probably the most fundamental criterion of feasibility. If the storage will not reliably fill, it is of little use in meeting firm demands.
- Look at special designations, such as wilderness or Wild and Scenic River status, as a basis for early exclusion.
- Presence of bull trout or designation as critical habitat could be considered exclusionary.
- Impact on recreation, both flat water and stream-based will be an assessment factor later on, but is probably not exclusionary.
- Cost per acre foot will eventually be an important criterion.

Agenda Item 4: Wrap Up and Next Steps

Action Items:

- Within the next two weeks, Work Group members will [1] take a closer look at the question of demand estimates and provide additional data or insight if possible, [2] review the list of potential storage options and provide further insight on both the completeness of the list and options shown which are clearly “non-starters”, and [3] check to see if they have relevant data or documents that would benefit the study. Responses will be sent to John Tiedeman at Reclamation.
- For the next meeting, the planning team will rethink the approach to target storage volume(s), especially the idea of identifying different components of demand for or desirability of additional storage. Also, in reviewing quantity estimates for these components, uncertainties and/or variables will be reflected as ranges, rather trying to settle on one specific quantity.

Next Meeting:

- September 20, from 9:30 AM to Noon, at Reclamation’s Snake River Area Office.
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RECLAMATION

Managing Water in the West

Boise/Payette Basin Storage Assessment

Stakeholder Working Group: Meeting 2 Agenda

September 20, 2005

9:30 am Introduction

- Meeting objectives
- Review of agenda and handout materials
- Meeting 1 summary—comments and approval

9:45 am Candidate storage options—Initial screening

- **Planning Team Presentation**
 - Previously identified sites—exclusionary criteria screening
 - Options not previously considered, by category
 - Summary—a first “short list”
- **Work group discussion**

10:45 am Target Storage Volume Estimates

- Introduction—adjustments to approach based on first meeting
- Planning Team presentation: Refined analysis of potential storage volume needs/uses
- Work group discussion

11:30 am Literature Review Deliverable

- Production and review schedule
- Additional SWG input regarding sources of relevant information/data

11:45 am Wrap up, Next Steps, & Questions/Answers

- Review of action items (and responsibilities) emerging from this meeting
- Next meeting—date, time, location, content
- Additional questions, answers, and discussion

Internet Web-Site Link: www.usbr.gov/pn/

Direct Link = [www.usbr.gov/pn/programs/srao misc/bp storagestudy/index.html](http://www.usbr.gov/pn/programs/srao_misc/bp_storagestudy/index.html)

Noon Adjourn

RECLAMATION

Managing Water in the West

Boise/Payette Basin Storage Assessment

Meeting Summary: Stakeholder Working Group Meeting 2

September 20, 2005

I. Introduction

This document is a summary of the second meeting of the Stakeholder Working Group for the Boise/Payette Basin Storage Assessment. The meeting was held September 20, 2005, from 9:30 AM to Noon, at Reclamation's Snake River Area Offices in Boise, Idaho. The meeting agenda was sent to all stakeholders prior to the meeting; this summary is organized according to the headings/topics of that agenda. The only topic not addressed was the status of the literature review.

II. Meeting Attendees

Reclamation Planning Team:

Lesa Stark Reclamation--Snake River Area Office Planning Program Manager	Sherrill Doran CH2M HILL
John Tiedeman Reclamation--PN Regional Office, Activity Manager	Mark Bransom CH2M HILL
John Petrovsky John Petrovsky Associates	Jenny Kindig CH2M HILL
Tom Haislip CH2M HILL	Jenni York CH2M HILL

Stakeholder Representatives:

Bryce Farris Ringert Clark Chartered	Paul Deveau Boise Project Board of Control
Norm Semanko Idaho Water Users Association	Tim Page Boise Project Board of Control
Ron Shurtleff Water District 65	Mary McGown Idaho Department of Water Resources
Chuck Mickelson City of Boise	Paul Seronko BLM
Scott Rhead United Water	Scott Campbell Pioneer ID
Kathy Peter U.S. Geological Survey	Dustin Miller Idaho Farm Bureau
Brayton Willis U.S. Army Corps of Engineers	Jerry Glenn Canyon Co. Planning and Zoning Commiss.
Eric Leitzinger Idaho Department of Fish and Game	Layne Bangerter Senator Crapo's office
Mike Holladay Holladay Engineers	Lane Jolliffe Congressman's Otters office
Kevin Lewis Idaho Rivers United	

III. Meeting Summary

Agenda Item 1: Introduction

Lesia Stark opened the meeting with a welcome and then handed off to John Petrovsky who [1] asked for comments on/corrections to the summary of Meeting 1 and [2] went over the agenda and purposes of this meeting (Meeting 2).

Regarding the Meeting 1 summary, John asked if there were any objections to nature of the summary (i.e. in the form of an interpretation and consolidation of meeting content rather than a more verbatim approach). No one in the SWG had a problem with this approach. The only specific comment on the content of the summary was from Mary McGown/IDWR, who stated that page 5 of the summary contained an overstatement regarding restrictions on the quality and quantity of groundwater in the Boise Basin to support new growth. Mary indicated that some restricted areas do exist, but the issue is not basin-wide at this point and varies widely from area to area.

John then began the planning team presentation with a slide listing the three main topics to be covered (note: hard copies of the planning team's slide show were provided to all attendees):

- **Candidate Storage Options**
 - Previously identified options (i.e. the list of over 200 introduced at the last meeting): Present and get SWG input on the results of initial screening based on four exclusion factors identified through discussion at the last meeting. Also, since several potential options are shown on many of the tributaries in both basins, begin to look at removing redundancy (i.e. reduce multiple sites down to the one or two in each tributary that makes the best sense.
 - Options not previously considered: Summarize and get SWG input on the current list of options not included in the above (e.g. off-stream, facility modification, ASR, operational/policy changes, exchanges, etc.).
- **Target Storage Volumes** — Present revised approach (based on discussion at last meeting) and associated results.
- **Literature Review Report** — Summarize content, production and review schedule.

Agenda Item 2: Candidate Storage Options – Initial Screening

Planning Team Presentation — Previously Identified Sites

Sherrill Doran began the technical presentation by showing the results of applying four initial “exclusionary” screening factors/criteria to the list of previously identified sites (summarized below; maps and matrices showing the geographic distribution of results were provided to all at the meeting):

- **Hydrology/refill capacity**
 - Factor and criteria description: This factor addresses the yield potential of the site (i.e. the percentage of years it would re-fill under long-term average hydrologic conditions). Preliminary analysis is based on USGS stream statistics and does not account for seepage or significant diversions. Criteria used to evaluate sites were:
 - Q80 (refill 80% or more of years) = good/acceptable for further study
 - Q50 (refill between 50% and 80% of years) = moderate/may or may not be acceptable

- <Q50 = poor/unacceptable
- Results: The analysis was run twice, first using a 20,000 AF minimum storage volume for all sites where no previous estimate of storage volume had been made, and second using a 50,000 AF minimum volume for these sites. Results were as follows (the geographic distribution of the results was shown on maps at the meeting):

	20,000 AF Min.	50,000 AF Min.
Good	43%	40%
Moderate	31%	29%
Poor	26%	31%

- **Special Designations — Wild/Scenic or Wilderness Areas**

- Factor and criteria description: Site locations were reviewed to determine if they were within river reaches designated as special status at either the federal or state level. At the federal level, such status includes Wild & Scenic Rivers and rivers within designated wilderness areas. At the state level, rivers are assigned special status receive either a Natural or Recreational designation. Criteria used to evaluate sites were:
 - Neither federal or state special status = good/acceptable for further study
 - State designated Natural or Recreational = moderate/may or may not be acceptable
 - Federal designation = poor/unacceptable
- Results:

Good	77%
Moderate	23%
Poor	<0.5%

- **Bull Trout Habitat**

- Factor and criteria description: Definition of critical habitat for Bull Trout is in flux at the federal level. Initial criteria used to screen sites according to this factor are shown below. Adjustments based on additional study may be necessary (e.g. refined data, distinctions between spawning and migratory habitat, etc.)
 - No potential or proposed critical habitat; no occupied habitat = good/acceptable for further study
 - Potential or proposed critical habitat designation; presence or status unknown = moderate/may or may not be acceptable
 - Known populations/occupied habitat = poor/unacceptable
- Results:

Good	51%
Moderate	45%
Poor	4%

- **Minimum Storage Capacity**

- Factor and criteria description: It is generally agreed that this study should settle on a minimum acceptable storage capacity for candidate sites. Only sites with the potential to contribute significantly to meeting storage needs (as these are being defined in the target storage volume analysis) should be carried forward into more detailed analysis. However, it is unclear where this minimum capacity should be set. An initial cut setting criteria for this factor is:

- >50,000 AF = good/acceptable for further study
 - >20,000 AF = moderate/may or may not be acceptable
 - <20,000 AF = poor/unacceptable
- **Results:** The results of this analysis are shown below. However, it will be noted that capacity estimates have never been made for a significant number of sites; sites in this “unknown” category will need to be studied further if they continue to survive screening analysis based on other factors.

Good	37%
Moderate	56%
Poor	5%
Unknown	39%

- **Summary and Interpretation**

Both the validity of these four factors as a whole, and the “break-point” criteria to be used in screening out sites from further consideration are subject to discussion. An initial review of the above results reveals the following:

- If the break-points for screening out sites according these factors were a rating of “good” for all, only 5 sites (~2%) would survive the screen. All of these are in the Payette Basin.
- If a general break-point of eliminating sites that are rated poor on two or more of the factors is used, 41% of the sites would survive into the next round of analysis.

Part of the agenda for this meeting is getting SWG commentary on these factors and criteria, including their validity or where the break-points should be. The goal is to refine this “exclusionary” level of analysis and re-run it for review at the next meeting. We do not want to eliminate candidates unjustifiably; nor do we want to carry forward and unrealistic and unwarranted number or sites.

Sherrill wrapped up the presentation on previously identified sites by discussing the desirability and validity of consolidating the number of sites on any given tributary, simply to reduce redundancy. On most tributaries in the two basins, several (sometimes higher than 10) potential sites have been identified in previous studies. Clearly, only one or two actual sites would likely be feasible from a hydrologic/yield standpoint alone. Thus, we are beginning to look at ways to determine, in a general fashion, where the most favorable locations are on each major tributary. Two lines of analysis are being followed: [1] eliminating run-of-the-river hydro sites (a considerable number of sites on our list were identified as potential hydro locations, but these may not be at all suitable for storage), and [2] looking more closely at topography, hydrology, elevation and other physical conditions along a given reach to settle on one or two candidates. We will be pursuing these investigations over the next month and will report results at the next meeting.

Planning Team Presentation — Other Candidate Storage Options

Sherrill summarized the latest list of candidate storage options not included in previous studies. This list will be given more attention for the next meeting, including defining conceptual locations, physical requirements, etc., as appropriate.

- Boise:
 - On-stream: add fixed flashboards to existing reservoirs, raise Anderson Ranch Dam, dredging

- Off-stream: line/pipe Boise canals, line Sand Hollow Canal, manage canals for ASR, building up Hubbard Dam, Snake River transfer near Lake Lowell
- Operational/policy: buy-out irrigation water and use for DCM&I; use “uncontracted” flow augmentation waters for DCM&I and replace elsewhere
- Payette:
 - Lower conservation pool at Cascade and designate water for DCM&I
 - Exchanges with Weiser (Galloway)

SWG Discussion

SWG commentary and discussion candidate storage options focused primarily on the factors and criteria used in the initial, exclusionary screening. Comments and observations included:

- General agreement that the Q80 break-point for Hydrology should be used.
- Caution that, in applying the Q80 criterion, we do not inadvertently eliminate sites that would work well in a “compound” configuration (i.e. storage located on a site that does not meet the Q80 criterion but would be ideal for storing water conveyed from another location—such as the main stem of the river—where water is available but storage is difficult). There have been opportunities identified in the Payette basin for such “off-stream” or “compound” solutions; and these could be superior in a number of ways to “on-stream”, single site solutions. These need to be studied in their own right, and they need to be identified separately on the maps.
- Regarding the Special Designations factor and criteria, a distinction may be justified between the Natural vs. Recreation designations at the state level. Storage may be acceptable on a Recreation river and not acceptable on a reach designated as Natural. This needs to be investigated.
- Also regarding Special Designations, the Forest Plans and planning process at the federal level need to be checked. The Forest Service has been studying which river reaches may be suitable and/or eligible for Wild and Scenic status; and will be carrying out necessary analysis in this regard as part of the Forest Plan updates. River reaches that they identify (perhaps have already identified) as potentially suitable/eligible must be managed so that relevant characteristics are not compromised until an official determination is made. This is a factor to be considered in our study of which candidate sites are most feasible.
- Two concerns were discussed regarding the Bull Trout habitat screening factor:
 - The data used in the first analysis is not complete. Known populations of Bull Trout exist in many more locations than shown in this analysis. IDWR needs to be consulted for further refinement of the basic data and the actual definition of the break-point criteria.
 - Bull Trout may not be a valid exclusionary factor. The presence of any ESA-listed species does not necessarily preclude the development of a site.
- Perhaps we should not limit ourselves to sites with greater than 50,000 AF capacity. 20,000 AF could go a long way to meeting some of the projected demands the region.
- Concern was expressed that we do not lose sight of the multiple uses/purposes of this storage, and that we look at the results of our course-level screening very carefully. A prime example of this concern is embedded in the observation that only 5 sites in the Payette basin pass all four initial criteria. If we were to move forward with such a result, no attention would be paid to the very real

need for additional flood control storage capacity in the Boise basin. Clearly, we need to maintain multiple perspectives all along the way so that we are addressing all needs. This could mean keeping some sites in the analysis that may be undesirable according to some criteria but are otherwise, perhaps uniquely, well suited to meet defined needs.

At the conclusion of SWG discussion, the following action items were identified:

- Regarding the types of “compound” option discussed above (i.e. potentially feasible “off-stream” options that would be eliminated by strict application of the Q80 criterion):
 - Scott Campbell will provide information on the specific examples of which he is aware;
 - The planning team will review the examples identified by Scott as an assist in defining criteria by which other such options can be defined for inclusion in the analysis;
 - These types of projects will be mapped and defined for the next meeting (they will also be distinguished separately from simple, one-site options on all future maps).
- The distinction between Natural and Recreational designations at the state level will be investigated by the planning team. So also will be the status of Forest Service review regarding Wild and Scenic designation suitability/eligibility. Based on the results of this further investigation, the Special Designations screen will be rerun and presented at the next SWG meeting.
- The planning team will consult with IDWR and other agency specialists to refine the data and the approach to setting criteria for Bull Trout. The screening analysis will be re-rerun to reflect the outcome of this work, with results presented at the next SWG meeting.
- The COE and Reclamation will meet within the next couple of weeks to discuss the approach to defining flood control needs as a component of new storage. The results of this meeting will be reported at the next SWG meeting.

Agenda Item 3: Target Storage Volume Estimates

John began this discussion by describing how the approach to target storage volume had changed due to input received at the last SWG meeting. The main points made during discussion at the last meeting were [1] the potential role of conservation and reuse needs to be communicated in estimates of growth in consumptive demand, and [2] we need to think more broadly regarding the potential role of new storage. In the latter regard, growth in consumptive demand is only one need to be met; increasing efficiency and/or reliability in meeting flow augmentation requirements and the growing need for additional flood control space are other potentially important purposes that can be served by additional storage.

The approach to defining target storage volume has been adapted specifically to incorporate this input. First, given uncertainties exist and/or the influence of other variables such as conservation, a range of possible demand for new storage will be stated rather than a single volume number. Second, target storage volume will be viewed using a “tiered” concept, with consumptive demands (DCM&I and agriculture) representing Tier 1, the most fundamental purpose of new storage. Tiers beyond this will incorporate (add-in) possible responses to other needs and uses (i.e. flood control and flow augmentation).

Sherrill then presented the results of new analysis using this approach. Bottom-line results are summarized below (details of analytical assumptions are shown in the slide presentation distributed at the meeting):

- Tier 1: Consumptive demands (DCM&I, agriculture):
 - Estimated now over a 50 year horizon vs. the 20 year horizon of prior analysis;
 - Increase in consumptive use demand, given varying assumptions regarding the role of conservation, changes in agricultural use, etc., now estimated to range from 59,000 to 156,680 AF in the planning horizon.
- Notes regarding flood control storage: This purpose was at first conceptually considered to be Tier 2. However, the following factors make the need for such a separate designation uncertain:
 - The need for additional flood control storage volume exists in the Boise basin, not the Payette;
 - Current flood control storage volume in the Boise Project, based on existing rule curves, ranges from 150,000 to 360,000 AF; if the assumption is made that a 10% to 25% increase in volume is needed, the additional “storage pocket” in the Boise basin would range from 15,000 to 90,000 AF;
 - Assuming also that a significant amount of the storage volume needed for consumptive uses is provided in the Boise basin, the flood control pocket could be included within the consumptive use volume (e.g. at the low end of the ranges, 15,000 of the 59,000 AF of new storage volume needed to meet consumptive uses could double as flood control on an as-needed basis).

As noted earlier, the COE and Reclamation will be determining our best approach to dealing with flood control storage volume estimates. Regardless of whether it is ultimately viewed as Tier 2 for the purposes of this study or it is subsumed in Tier 1, flood control will remain a distinct purpose be considered when selecting potential storage option to be studied in greater detail.

- Tier 2: “Discretionary” purposes, such as flow augmentation, operational timing, recreation benefits: To date, only the potential role of new storage in helping to meet the local portion of flow augmentation requirements has been reviewed. Other possible “discretionary” or non-consumptive purposes have not been quantified. Regarding flow augmentation, the following estimate was presented:
 - Of 487,000 AF requested annually from the state as a whole, the Boise & Payette basins typically provide between 30,000 AF (dry years) and 200,000 AF (wet years);
 - The available volume in un-contracted water in these basins is 136,000 AF;
 - A target for new storage volume can be defined as the difference between the amount that is “guaranteed” in un-contracted water and the total volume expected from the basins. Thus: 200,000 AF contribution minus 136,000 AF available in un-contracted water yields a target volume for new storage of 64,000 AF.
- Total maximum Tier 1 + 2 target storage volume given the above analysis and assumptions = 219,680 AF.

SWG Discussion

There were no SWG comments or concerns regarding the new method of estimating growth in consumptive use demands. SWG members also agreed that we need to wait for guidance from the COE and Reclamation before defining the role of flood control in defining potential storage options for further study.

The primary point of discussion centered on the increment (or Tier) termed discretionary in the current analysis. Concerns were raised that this study is being focused too narrowly on Boise and Payette basin water supply issues. Some stakeholders understood that Congressman Butch Otter’s original intent and purpose for the study was to look at statewide water storage and demand issues, and the role that the

Boise and Payette basins could play in resolving those issues. Some members of the SWG feel it is possible that limiting this study to purposes only the Boise and Payette Basins will not garner the political support required to implement the options that are eventually chosen to be carried forward.

Agenda Item 4: Wrap Up and Next Steps

Action Items:

- Action items identified for the candidate storage option analysis are listed earlier herein.
- Regarding the concerns expressed about the scope of this study, analysis will proceed along current lines until/unless a change in direction is determined necessary by agency leadership. If there is a need for the leadership at a higher level to meet and redefine the focus of this study, that should happen in the near future.

Next Meeting:

- October 18, from 9:30 AM to Noon, at Reclamation's Snake River Area Office.
-

RECLAMATION

Managing Water in the West

Boise/Payette Basin Storage Assessment
Stakeholder Working Group: Meeting 3 Agenda

October 18, 2005

9:30 am Introduction

- Meeting objectives and review of agenda
- Meeting 2 summary—comments and approval

9:40 am Status of Target Storage Volume Estimates

- Introduction
- Tier 1 (consumptive uses): Working range established
- Flood control: Report on COE/Reclamation discussions
- Tier 2, flow augmentation, etc: Approach to the intra-basin/statewide needs perspective
- Q & A

10:00 am Candidate Storage Options—Latest Results & Next Steps

- Introduction
- New sites—surface—off-stream
- New sites—surface—on-stream
- Summary & Discussion: Short list of new, surface, on- and off-stream sites
- Other categories of options: Listing and description of options
 - New sites—ASR; Existing facility modifications; and Reallocations, exchanges, transfers
 - Discussion: next steps in completing these lists
- Criteria for next round of screening analysis (evaluation factors/criteria)
 - Planning Team preliminary listing
 - SWG discussion

11:30 am Literature Review Deliverable—SWG Comments & Input

11:45 am Wrap up, Next Steps, & Questions/Answers

- Review of action items (and responsibilities) emerging from this meeting
- Next meeting—date, time, location, content

Noon Adjourn

RECLAMATION

Managing Water in the West

Boise/Payette Basin Storage Assessment

Meeting Summary: Stakeholder Working Group Meeting 3

October 18, 2005

I. Introduction

This document is a summary of the third meeting of the Stakeholder Working Group for the Boise/Payette Basin Storage Assessment. The meeting was held October 18, 2005, from 9:30 AM to Noon, at Reclamation's Snake River Area Offices in Boise, Idaho. The meeting agenda was sent to all stakeholders prior to the meeting; and this summary is organized according to the headings/topics of that agenda.

II. Meeting Attendees

Reclamation Planning Team:

John Tiedeman Reclamation--PN Regional Office, Activity Manager	Mark Bransom CH2M HILL
John Petrovsky John Petrovsky Associates	Jenny Kindig CH2M HILL
Tom Haislip CH2M HILL	Jenni York CH2M HILL

Stakeholder Representatives:

Bryce Farris Ringert Clark Chartered	Paul Deveau Boise Project Board of Control
Jonathon Parker Idaho Water Users Association	Tim Page Boise Project Board of Control
Ron Shurtleff Water District 65	Mary McGown Idaho Department of Water Resources
Scott Rhead United Water	Scott Campbell Moffatt Thomas/Pioneer ID
Brayton Willis U.S. Army Corps of Engineers	Jeff Dillon Idaho Department of Fish & Game
John Olson U.S. Environmental Protection Agency	Lane Jolliffe Congressman's Otter's office
Mike Holladay Holladay Engineers	John Redding Reclamation--PN Regional Office
Kevin Lewis Idaho Rivers United	

III. Meeting Summary

Agenda Item 1: Introduction

John Petrovsky opened the meeting with a welcome and asked for comments on/corrections to the summary of Meeting 2, noting that Norm's comments had been incorporated into the summary and posted to the Web site. No additional changes or comments were noted. John then went over the agenda and purposes of this meeting (Meeting 3).

- Status of Target Storage Volume Estimates
 - Tier 1: Consumptive demand estimates
 - Tier 2: Flood control
 - Tier 3: Flow augmentation, other benefits
- Candidate Storage Options—Latest Results & Next Steps
 - Results of initial screen (all surface storage options/initial criteria)
 - Response to concerns re: treatment of off-stream options
 - Criteria cut-points used for this “final run”
 - Results: Options to be carried forward to next level
 - Defining Other Categories: ASR and reallocations/exchanges/transfers
 - Criteria and Process for Next Level of Screening Analysis
- Literature Review Report

Agenda Item 2: Status of Target Storage Volume Estimates

The status of work toward establishing target storage volume estimates was reviewed, as summarized below. Overall, it was observed that working estimates have now been defined for Tier 1 (consumptive demand increases) in both basins and Tier 2 (additional flood control storage) in the Boise basin. Work still needs to be done to estimate Tier 2 flood storage requirements in the Payette Basin and the upper end of Tier 3 (flow augmentation and other uses). This work will proceed in parallel with the study of potential storage sites/options.

Tier 1—Consumptive Use Demand Increases: There seems to be general acceptance of the working range presented at the last meeting for this category of demand for additional storage. This working range is 59,200 to 156,680 acre-feet per year over a 50 year planning horizon, with roughly 80% of this demand growth occurring in the Boise Basin and 20% in the Payette. Both DCM&I and agricultural demands are included in these estimates, and the low end of the range is derived from analysis of the potential role of conservation and reuse.

Tier 2—Flood Control Storage: Brayton Willis (USACE) provided and summarized a handout (included herein as Attachment 1) describing the flood control situation in the Boise Basin. The main points included on the handout are summarized below; these are derived from discussions with Reclamation and with senior USACE hydrologists.

- Due to the rapid growth in the Treasure Valley, including substantial development just outside the regulatory floodway, the threshold for significant property damage in the floodplain along a 12 mile stretch of the Boise River is now approximately the 30-year flood event.
- A 100-year flood event would cause major damage in Boise and Ada County.
- Loss of life is unlikely for this level of flooding except in the case of a dam failure or gate failure because there would be sufficient time for residents to evacuate the area.

- The minimum space required to reduce risk is probably 50,000 acre-feet.
- The amount of space required to reduce risk considerably is on the order of 200,000 acre-feet.
- In both these cases storage would be dedicated solely to flood control.
- More exact protection levels cannot be determined without more detailed study.
- If more flood control space is made available, a floodplain management plan must be developed by locals such that downstream areas are protected from flooding.

Brayton also noted that a new Twin Springs facility and/or Lake Lowell have been discussed as options that could play a role in meeting flood control needs.

Some discussion ensued regarding the potential for addition storage facilities in the Boise Basin that could accommodate both consumptive use demands and flood control storage needs (i.e. at the last meeting, Sherrill noted that such double-duty might be possible). Both Scott Campbell and Brayton Willis noted that there are potential problems with this concept; the roles of flood control and consumptive use storage are not always compatible in terms of timing and delivery. This is illustrated most fundamentally by cases where flood control releases are required, followed by inadequate/incomplete refilling to achieve expected storage for consumptive uses. Such situations illustrate the tradeoffs involved in this double-duty concept. These tradeoffs affect stakeholder expectations and agreements and add complexity to cost/benefit analyses. Tradeoffs must be studied in detail and fully understood before the concept is pursued.

Tier 3—Flow Augmentation and Other Benefits: The only estimate to date of potential target volume for these purposes is from the purely local (i.e. Boise and Payette basins) perspective. This estimate is 64,000 acre-feet, as presented at the last meeting.

Discussions of the perspective (raised by Scott at the last meeting) that this study should look also at potential expanded regional/statewide benefits have not yet occurred but are being planned. In response to Scott's inquiry on this subject, JohnT stated that the process of setting up required meetings was ongoing and that contacts made so far included the congressional delegation, IDWR, and within Reclamation.

John Petrovsky noted that, pending the results of these discussions, the current study will proceed on the following basis: [1] analysis of potential storage options/sites will continue according to the current study design (as discussed under Agenda Item 3, below), and [2] the team would look at the possibility of estimating the maximum potential yield of the Boise and Payette Basins in terms of additional water available for storage. The latter approach could at least begin to indicate what role these two basins might play in a larger, more statewide program.

Summary/Conclusion: John P. concluded the storage volume discussion overall by noting that at least we were beginning to get a sense of the order-of-magnitude volume requirements to meet local needs and achieve other local benefits. The only missing piece locally at this point is flood control needs in the Payette basin. Pending that estimate, and assuming for the moment that flood control in the Boise is additive vs. embedded, we are looking at a range to meet local needs of 110,000 to 400,000 acre-feet. The lower end of this range would assume a maximum role for conservation/reuse in meeting consumptive demand, a minimum of 50,000 AF additional flood control storage in the Boise, and no accommodation for flow augmentation or other benefits. The upper end of the range would assume a minimum role for conservation/reuse, a full 200,000 AF response to Boise flood control needs, and the 64,000 AF estimated to increase reliability/flexibility in meeting flow augmentation requests, etc. This order-of-magnitude view can give us some perspective on how potential storage sites/options (individually or in combination) match up with volume needs.

Agenda Item 3: Candidate Storage Options

John P. began discussion of storage options by presenting a revised, better organized naming convention for the various types of options. Shown below, this convention will serve as an improved guide for categorizing, discussing and comparing the distinctly different types of storage options being considered.

- Surface storage
 - New on-stream sites
 - New off-stream sites
 - Existing site/facility modification
- ASR (Aquifer Storage and Recovery)
- Canal systems as storage (i.e. piping, lining)
- Non structural/no physical facilities (including transfers, reallocations, exchanges)

Discussion then proceeded into a review of study status for each of the four major categories of options.

Surface Storage Options—Proposed “Final” Results of Initial Screening

Mark Bransom opened this discussion with a review of how off-stream options were being considered. This was in response to concerns expressed by Scott at the last meeting that the Q80 criterion could eliminate sites that were particularly viable for off-stream storage projects. Mark started with a working definition of the off-stream option: *Off-Stream = Site located on or adjacent to a drainage-way without enough year round natural runoff to fill frequently. Requires inter-basin or trans-basin water sources.* He then indicated that, by using input received from Scott and carefully reviewing the site characteristics data, potential off-stream sites that would have been eliminated based on pure application of the Q80 refill probability are being carried forward according to the other initial screening criteria and beyond, as appropriate. He also noted that as of this meeting, site mapping will now use different symbols to clearly distinguish new on-stream, new off-stream, and existing facility modification options. There were no concerns raised by the SWG about these adjustments to the study.

John P. then presented the results of the latest, and proposed final, round of the initial screening process, including application of the four “exclusionary” criteria and elimination of both redundancy and options named in source documents for which no site is specified. He started by defining the criteria “cut” points used in this final run (shown below), indicating that these cut points were selected with consideration of SWG discussion at the last meeting and further evaluation stemming from that discussion:

- Q80: Strict application to all on-stream sites; off-stream sites carried forward if they survived the other three criteria.
- Special Designations: Federal W&S or Wilderness & State “Natural” designation excluded now; Federal candidates and State “Recreation” designation carried forward for further analysis (Related to this cut point, it was noted that the Idaho State Water Board has indicated that reservoirs are not compatible with designated Recreation rivers; however the Board maintains discretion in this matter and there are cases where the State Water Plan retains a potential reservoir site on a designated Recreation segment. That is why we are recommending that State Recreation designations be carried forward).
- ESA—Bull Trout: Known resident populations & critical spawning and rearing habitat excluded now; migratory or over-wintering habitat and areas with potential, but unconfirmed, populations carried forward (It was noted that this cut point had been defined through discussion with Reclamation and IDFG specialists, and is believed to strike an acceptable balance at this point

between [1] response to ESA concerns, given knowledge of the species and its habitat, and [2] the need to carry some reasonable alternatives forward in the Boise Basin—i.e. due especially to flood control storage concerns).

- Minimum Volume: Minimum of 50,000 acre-feet strictly applied to new sites; existing reservoirs excepted from this minimum recognizing that an option of assembling 50,000 acre-feet or more volume from actions at two or more existing reservoirs warrants further study.
- Consolidation, Elimination of Redundancy and Sites “In Name Only”: The basic “rules” used in this part of the analysis were:
 - Two or more sites close together, with equal screening characteristics, were consolidated into one.
 - Sites identified only as hydropower potential and near another, similar on-stream site were consolidated into one on-stream site.
 - Sites listed in source documents but with no location specified and no additional data for clarification were excluded.

Application of these criteria cut points and consolidation rules yields a total of 56 sites moving forward to more detailed analysis. These 56 sites break down as follows:

- 15 new on-stream (10 Payette; 5 Boise)
- 34 new off-stream (19 Payette; 15 Boise)
- 1 new unclassified (Payette)
- 6 existing reservoirs (3 Payette; 3 Boise)

Of the 145 sites eliminated, 63 were due to failing one or more of the criteria cut points defined above and 82 were eliminated through the consolidation process.

In asking for SWG comments on these results, John P. suggested that we had gotten about as much as we legitimately could out of this phase of analysis and that we had succeeded in both [1] cutting an initial list of ~200 down to a reasonable number for more detailed analysis, and [2] maintaining a good cross-section of site type and location. He also noted that the analysis to date was not so rigid or conclusive that a site eliminated now could not be added back in if new information came to light later.

With one exception, there was general SWG acceptance of these results and no objections were voiced. The exception centered on treatment of existing reservoirs.

First, it was noted that not all reservoirs were being analyzed; only 6 were listed up to this point, three in the Payette (Black Canyon, Little Payette Lake, Upper Payette Lake) and three in the Boise (Lucky Peak, Arrowrock, Anderson Ranch). There are many other reservoirs in these two basins, and perhaps all should be screened in some fashion for potential value in this assessment. Mark and Jenny of CH2M Hill noted that we had simply included only those sites listed in the literature/source documents. It was generally agreed that we would define a more rigorous approach to dealing with existing reservoirs. For example, many existing reservoirs are small and might legitimately be eliminated due to having insufficient volume potential to really count in this study. On the other hand, some, like Deadwood, may not have been identified previously but may have future storage potential. Overall, additional criteria may be identified to help screen existing sites and revisit the list being carried forward for further analysis.

From another perspective, questions arose concerning what actions were being considered at existing reservoirs. Types of action mentioned to date include use of freeboard, adding flashboards, raising the dam, and dredging; but no site-by-site specification of potential actions has been prepared. In this regard, the potential feasibility of dredging at Cascade was noted as something warranting attention; this

possibility could have both practical and environmental benefits. Dredging has also been suggested as a possibility at other sites. It was agreed that we would take a look at this question and that there may end up being multiple potential “projects” at any given existing reservoir (e.g. Arrowrock A, Arrowrock B, etc.).

Finally, it was suggested that some existing sites could clearly be eliminated now due to obvious impacts or constraints outside of the criteria considered to date. The main examples cited were Black Canyon and Cascade. Raising the dam at either of these locations is clearly infeasible due to obvious, unacceptable impacts (i.e. at Black Canyon, the relocation of many miles of state highway would be involved; at Cascade, land use impacts would be overwhelming). It was noted and agreed, however, that these types of impact criteria would be part of the next level of screening analysis and it was not appropriate to apply them now, piecemeal, outside of the more systematic, inclusive analysis.

ASR

The main questions about ASR at this point in the study are:

1. Is ASR a real possibility for meeting storage requirements in either or both basins? and
2. Are we at a point where we can actually define specific ASR projects (e.g. location, volume, etc.) to be compared with the surface storage options?

Paul Deveau of the Boise Project Board of Control provided an overview of ASR status in the Boise basin. His general conclusions, confirmed by other SWG members, were that, yes, ASR has potential as a future option for storage and drainage management; but, no, we are not at a point where specific projects have been or can be defined.

The same conclusions appear to apply in the Payette Basin. For example, Mike Holladay noted that the water table in Fruitland has dropped 20 to 30 feet since the 1970s and the recharge problem gets worst every year. Certainly ASR could have a place in addressing this problem; however, we are not close to defining specific projects.

Given these conclusions, John P. observed that ASR would definitely need to be a subject of discussion in the Assessment Report (i.e. this option can play a future role in storage), but it would need to be treated qualitatively (i.e. there is insufficient definition of ASR options to legitimately compare them with the surface storage options).

Canal Systems as Storage

The same basic questions noted above for ASR apply to canal systems. It was quickly concluded in discussion that lining or piping of canals is a conservation action, and does not hold potential as a storage action. Because of this, no further consideration of this type of action is warranted.

Re-Allocations, Transfers, Exchanges

As with ASR and canal systems, discussion was centered on trying to clarify and specify the role of these types of actions in meeting storage requirements. The main points emerging from discussion were:

- In the present study, we are only looking at the potential for transfer/exchange between the Boise and Payette Basins. The primary example cited to date is provision of additional storage in the Payette to free up flow augmentation water for consumptive uses in the Boise. Such action could avoid or at least forestall the need for a trans-basin conveyance. Refer to discussion of Tier 3 storage volume estimates for perspective on interactions with other basins.
- Potential for re-allocations of Federal project water in either basin would require Congressional action, exploration of which is not within scope of this assessment.
- These options will not address the need for additional flood control storage in the “receiving” basin since no new storage capacity is created in that basin.
- As with ASR, these options will likely need to be treated qualitatively in this study. We may be able to see potential applications more clearly as the work on new surface storage proceeds.

Surface Storage Options—The Next Level of Screening

John P. then began the presentation of how the next, more detailed level of screening analysis was proposed to proceed. The first steps would be to [1] conduct more detailed analysis of hydrologic feasibility, and [2] better define each project for purposes of more detailed criteria/impact analysis.

In the first regard, Jenny explained that the additional hydrologic study would be based on Reclamation’s MODSIM program. She explained that MODSIM:

- is a river and reservoir operations model that accounts for all active water rights, channel constraints and flood control limitations, as well as historic hydrology, in the present system;
- can look at the refill of the new sites without impacting the system’s current delivery commitments; and
- allows an understanding of the available water (what will actually be refilled) and what can actually be delivered.

MODSIM runs are being done for 15 representative sites, with the expectation that these runs will provide insight into the feasibility of, or problems with, all of the sites being carried forward. Information to be generated includes:

- Probability of refill
- Exceedance probability for annual water year deliveries
- Restrictions due to channel constraints and/or flood control limitations
- Verification that new storage will not impact the refill capacity of existing reservoirs and deliveries to existing water users.

John P. then explained that more detailed project definitions would focus on drawing a generalized pool “footprint” for each new or expanded site being considered. This project definition work would then allow general assessment of such factors as land use or infrastructure impacts. The work would be based simply and directly on applying target pool volume to local topographic data.

He then presented a preliminary working list of the evaluation factors and criteria proposed to be used in the next level of screening analysis. These include:

Socioeconomic Factors:

Land Ownership	- Public vs. Private
Land Use-Existing	- Displacement of DCM&I uses - Displacement of irrigated/developed agriculture
Land Use-Planned	- Displacement of planned DCM&I uses - Displacement of irrigated/developed agriculture
Recreation Uses	- Displacement of recreation sites - Displacement of noted fishing reaches - Displacement of noted boating reach
Infrastructure	- Relocation of Road(s) - Relocation of other facilities (e.g., telecomm)

Environmental Factors:

Federal ESA Species	- Bull Trout migratory/over-wintering habitat; proposed critical habitat
Protected River Status	- Potential Federal W&S - State Recreation River
Other?	- (are there other factors such as State species of concern?)

Major Cost Factors:

Storage Facilities	- Construct dam and appurtenant facilities
Conveyance Facilities	- Construct inter-basin - Construct source-to-storage

John P. concluded the presentation by noting that assessment of any of these factors would depend on ready access to information (i.e. we are working at a very general level and still considering a large number of sites). He also explained that the comparative analysis would begin with all evaluation factors being equal, but that the use of relative importance weightings (i.e. one or a group of factors being given greater importance than others) may provide important insight as the analysis progresses. Certainly, it is often the case that some stakeholders consider cost/socioeconomic factors to be most important while others consider environmental factors/impacts to have greater weight. John indicated that it is often very valuable to run the analysis with different points of view in this regard; the results can be surprising and unexpected.

The meeting was then opened for SWG discussion of the proposed next phase of screening. SWG commentary focused primarily on the list of factors/criteria to be used. Key points made include:

- Scott observed that John's slides reflected an assumption that, from the standpoint of land ownership, building a storage project on public land is clearly preferable to private land. He indicated that this may not be a valid assumption, that the situation can vary widely based on site-specific conditions. Land ownership needs to be treated in a different fashion than such clear "suitable-unsuitable" factors as displacement of residential uses.
- John Olson noted that water quality should be included as an environmental factor in the screening analysis. He suggested that a new site shouldn't be located on a segment that has excellent/good water quality. Scott, however, observed that water quality could be improved by a new storage facility (e.g. by regulating discharges), and that this is also a case-by-case concern.
- John P. mentioned the perspective that reservoirs can have beneficial effects such as helping to provide in-stream flows immediately downstream or increased reliability of flow augmentation water.

- Jeff Dillon indicated State species of concern (e.g. native redband trout) should definitely be an evaluation factor.
- Potential changes to stream morphology was suggested as an impact to be considered.
- Regarding the category of Cost Factors, John P. and Mark explained that no detailed cost analysis was planned in this study, and that such analysis is not really considered possible or appropriate at this level of planning. The preliminary cost factors shown are an attempt to at least compare projects in terms of whether or not they require major construction. This perspective had more meaning while it was thought that other types of storage, such as ASR would be part of the screening process (i.e. to build a dam or not to build a dam). Since that is not the case, this category of evaluation factor may not have much value now. The only exception might be consideration of whether or not projects require major, trans-basin conveyances. Otherwise, not enough can be known at this point about project construction costs to conduct a valid comparison.
- Other SWG members noted that [1] cost analysis should include such factors as land acquisition costs, impact mitigation requirements, etc., and [2] major cost factors could also include dredging. It was generally agreed that such detailed cost analysis was not appropriate at this level of study.

Agenda Item 4: Draft Literature Review Report

Mark distributed copies of the Draft Literature Review Report, explaining that it was essentially an annotated summary of literature reviewed to obtain the initial list of candidate surface storage options. This document will become an appendix to Water Storage Assessment Report.

Agenda Item 5: Wrap Up and Next Steps

Action Items:

- Any further thoughts on the factors and criteria to be used in the next phase of screening should be forwarded to JohnT. within a week. The next meeting will focus on the comparative analysis process, perhaps including some initial results.
- Similarly, comments on the Draft Literature Review Report, especially any omissions, should be forwarded to JohnT.

IV. Next Meeting

The next meeting will be on November 15, from 9:30 AM to Noon, at Reclamation's Snake River Area Office. The meeting will focus on the next phase of screening, including finalizing the list of factors/criteria to be used and the technical method to be applied in comparing options. (Note: at the meeting John P. indicated that preliminary results of the screening would be available for discussion at this next meeting. Subsequent review of the project work plan revealed that the actual data gathering and analysis is planned to occur after solidification of the process/methodology at the November meeting).

RECLAMATION

Managing Water in the West

Boise/Payette Basin Storage Assessment

Stakeholder Working Group: Meeting 4 Agenda

November 15, 2005

9:30 am Introduction

- Meeting objectives and review of agenda
- Meeting 3 summary—comments and approval

9:40 am Update on Target Volume Discussions, if any

9:50 am Surface Storage Options—Second Round Screening Process

- Introduction—overview of process
- Refined hydrologic feasibility analysis
- Socioeconomic and Environmental evaluation factors & criteria
 - Revised list per SWG input
 - Discussion and finalization
- Method of rating performance against criteria—level 1 & 2
- Use/interpretation of performance rating results:
 - First look — Graphic-oriented matrix (non-numeric array of results)
 - Second look — (as necessary) Numeric performance scores for each criterion summed to obtain simple, raw “score” for each option
 - Third look — (as necessary) Application of relative importance values—exploration of differing points of view regarding which criteria are most important to decision-making
- SWG discussion
- SWG relative importance values exercise

11:45 am Wrap up, Next Steps, & Questions/Answers

- Review of action items (and responsibilities) emerging from this meeting
- Date, time and content of next meeting

Noon Adjourn

RECLAMATION

Managing Water in the West

Boise/Payette Basin Storage Assessment

Meeting Summary: Stakeholder Working Group Meeting 4

November 15, 2005

I. Introduction

This document is a summary of the fourth meeting of the Stakeholder Working Group for the Boise/Payette Basin Storage Assessment. The meeting was held November 15, 2005, from 9:30 a.m. to 11:00 a.m. at Reclamation's Snake River Area Offices in Boise, Idaho. The meeting agenda was sent to all stakeholders prior to the meeting; and this summary is organized according to the headings/topics of that agenda. Also, a hard copy of the PowerPoint presentation referenced herein was distributed to all meeting attendees; for this reason, the full content of the slideshow is not reproduced here.

II. Meeting Attendees

Reclamation Planning Team:

Lesa Stark Reclamation--Snake River Area Office Planning Program Manager	Sherrill Doran CH2M HILL
John Tiedeman Reclamation--PN Regional Office, Activity Manager	Mark Bransom CH2M HILL
John Petrovsky John Petrovsky Associates	Jenni York CH2M HILL
Tom Haislip CH2M HILL	

Stakeholder Representatives:

Bryce Farris Ringert Clark Chartered	Paul Deveau Boise Project Board of Control
Jonathan Parker Idaho Water Users Association	Tim Page Boise Project Board of Control
Ron Shurtleff Water District 65	Mary McGown Idaho Department of Water Resources
Bert Bowler Idaho Rivers United	Stacy Baczkowski Idaho Department of Water Resources
Kathy Peter U.S. Geologic Survey	Scott Campbell Moffatt Thomas/Pioneer ID
Mike Holladay Holladay Engineers	Jeff Dillon Idaho Department of Fish & Game
Dustin Miller Idaho Farm Bureau Federation	Mark Shleta Payette County
Chuck Mickelson City of Boise	Lane Jolliffe Congressman's Otter's office

III. Meeting Summary

Agenda Item 1: Introduction

John Petrovsky opened the meeting with a summary of the agenda and meeting objectives. The primary purpose of this meeting is to review and discuss the process we propose to use in our second round of site/option screening. This process is intended to take the roughly 60 sites that emerged from our initial screening and identify those that look the most promising for more detailed analysis in follow-on reconnaissance-level study by Reclamation. Since we want to respond to all three tiers of needs/benefits we have identified in our target volume discussions (i.e. including flood control in the Boise), our intention is to end up with a short-list of sites in both the Boise and Payette basins.

The first step in this process will be conducting more detailed hydrologic analysis using Reclamation's MODSIM program. This program incorporates all existing water rights, contracts and infrastructure, in addition to historic hydrology, and may allow the list of ~60 to be reduced somewhat based on hydrologic performance. Feasible sites remaining after the MODSIM analysis will be subjected to a comparative analysis based on the socioeconomic and environmental criteria. In addition, since it is likely that opinions will differ regarding which of these criteria (e.g. socioeconomic vs. environmental) are most important in making decisions, we will go through a relative importance exercise to get SWG rankings of the criteria so that we can run the analysis according to differing points of view and see how the results vary. Finally, we will review and discuss the technical process we intend to use to quantify criteria performance (i.e. impact levels) and then apply the relative importance values.

At this point, John Tiedeman reminded Mr. Petrovsky to ask if there were any comments on the minutes from the last SWG meeting.

The only comment was from Mary McGown of IDWR who wanted to clarify current regulatory constraints related to the feasibility of using ASR for storage. She indicated that current state regulations do not accommodate/allow an entity to store water in an aquifer and maintain exclusive rights to withdraw that same quantity of water at a later date. Instead, under current law, water entering an aquifer becomes public water and may be withdrawn according to other water rights. Mr. Petrovsky indicated that this important constraint needed to be recognized as part of our ASR discussion in the Assessment report.

John also noted that requests had been received for the planning team to get the meeting summaries out to the SWG in a more timely fashion than has been the case to date. He indicated that goal henceforth will be to get the summary out within a week following the meetings.

Agenda Item 2: Update on Target Volume Discussions

Before getting into the main purpose of the meeting, the status of target volume analysis (i.e. projected storage needs, uses and/or benefits) was reviewed. The leadership-level discussions planned related to the local vs. regional/statewide perspectives of this study have not yet occurred. Thus, our current status on this topic is the working range of strictly local needs/uses discussed at the last meeting:

Working Range of Local Needs*

Tier 1: Consumptive Demand	60,000 to 157,000 AF
Tier 2: Flood Control**	50,000 to 200,000 AF
Tier 2: Flood Augmentation/Other Benefits	0 to 64,000 AF
Total***	110,000 to 421,000 AF

* The numbers will be continued to be refined over time.

** Payette flood control needs are not yet estimated.

*** This assumes flood control is additive.

As noted in prior meetings, this target volume analysis will be used later in the process to help us review various scenarios for meeting different levels of need and achieving different levels of benefits. For example, since our minimum storage volume for candidate sites is 50,000 AF, we may look at different combinations of sites and locations to achieve different increments of the range(s) shown.

Agenda Item 3: Surface Storage Options – Second Round Screening Process**Revised/Final List of Sites/Options Entering Second Round Screening**

Before getting into the screening process itself, Sherrill Doran reviewed the “final” list of sites to be analyzed in that process (copy of list attached hereto as Attachment 1; list also distributed at the meeting). Her main points regarding the list were:

- A combination of on-stream, off-stream, and existing facilities are being carried forward in each of the two the basins. (John P. also noted that the list of existing sites had been reviewed and expanded to be more inclusive based on discussion at the last meeting)
- We have significantly refined our estimates of the volume/capacity of candidate sites (new or revised volume/capacity estimates are shown on the list for most sites). Prior estimates were taken from the literature, with little to no technical backup/basis given to support these estimates. Now that we have current hydrological information and can apply MODSIM analysis (to be discussed later), we are better able to estimate how much water is really available to be captured and then delivered. We are able to get an idea, on a site-by-site basis, what the maximum hydrologic potential is--how much water is actually coming to/through a given site, how much of that water is already committed in what timeframes, etc. and thus how much water is available for new storage. Based on this analysis, we will be looking at each site in 50,000 AF increments up to its estimated maximum potential.

Scott Campbell asked what the basis was for the volume range shown for the Squaw Creek sites.

Sherrill indicated that previous analyses did not appear to consider existing water rights or water contracts. So, for example on Squaw Creek, the volume of water in the North Fork Payette that is physically available is very different from the volume of water that is legally available to be diverted due to constraints on volume, timing, and other factors. Also, once the water is in storage, we must look at how that water can be delivered as another area of possible constraint. The MODSIM tool allows us to look at both of these perspectives, how much water is actually available and how it can be delivered. We will, in fact, be refining the MODSIM analysis over the next two weeks to incorporate the delivery aspect; and these volume estimates could change slightly.

Scott Campbell asked the watermaster for the Payette River to discuss what restrictions may have been discovered with those two facilities on Squaw Creek given that there is no downstream storage facility during the non-irrigation season. Ron Shurtleff responded that he understood where the water rights

come into this. He thought that the numbers for capture are probably higher than this but some serious calculations would need to be conducted to determine the difference.

Sherrill clarified that although there is a lot of output from that MODSIM model, the numbers in the attachment reflect the maximum volume that could be stored and captured at the end of June, which is after the flood season but prior to irrigation releases. So it is not necessarily a cumulative amount over the annual period, it is the maximum volume that could be retained at any one time in any one of these facilities, which is important in this analysis as kind of a footprint for how big that site would need to be.

Lesa Stark also commented that one of the restrictive factors is the volume of consumptive use, recognizing that there would be years of higher or lower water. The volumes represent the volume of water that could be stored and contracted 80% of the time.

Refined Hydrologic Feasibility Analysis

John reiterated that refined hydrologic analysis was the first step to be done in the second round of site screening. Through the use of MODSIM analysis, it may be possible to further pare down the list of potentially viable or desirable candidates prior to entering the constraint criteria analysis. He then turned the discussion over to Sherrill who provided background on the MODSIM tool and its application in this study.

Sherrill Doran described the MODSIM model as a way to help Reclamation manage their operations and water delivery. MODSIM separates natural flow rights and storage rights and certainly incorporates water rights, senior rights versus junior rights, and the timing and what is obligated and delivered. Finally, the model predicts the probability of refill, under the current operational capacity and constraints, to determine what volume might be able to delivered 80% of the time versus 90% of the time at different sites. One of the advantages of MODSIM is that it helps assess how to avoid impacts on the refill capacity of the reservoirs and delivery to the existing water users.

Scott Campbell asked whether the MODSIM numbers reflect the active capacity of the reservoirs or the total capacity? He explained that because current facilities have a dedicated conservation pool, whether or not it is expressly dedicated for that purpose or not, it becomes a de facto conservation pool.

Lesa Stark responded that MODSIM can look at the question either using active capacity or total capacity, with qualifiers. Sherrill said that factoring in the conservation pool will be looked at in more detail in the next phase, but that the consistent treatment of sites was valuable in a comparative sense. In comparative terms, this is still a good normalizing approach and then as we analyze those final sites, we will be able to determine the difference between the active storage and the total storage. This issue will be kept in mind to make sure that appropriate active volumes are being targeted.

Comparative Analysis—Socioeconomic and Environmental Criteria

Discussion then moved to the comparative analysis process. John indicated that there were three topics to be discussed on this subject:

- Project Definition—development of reservoir footprints.
- Evaluation Factors and Criteria—getting to final list.
- The actual Analysis Process itself—both objective criteria performance scoring and applying relative importance values to these scores to portray differing points of view.

Project Definition: John showed an example of the rough reservoir footprints that will be drawn for each candidate site in the analysis. These footprints will be developed using digital topography in a GIS system. For each site, footprints will be drawn for each 50,000 AF increment in the potential storage range shown on the site list discussed earlier. This information can then be used to measure each site's potential impacts on land use, roads, and each of the other impact criteria being used in the analysis. For example, John indicated that the reservoir footprints would be overlaid in the GIS system on land use information that was also available in digital form. (John identified the land use information to be used as that available from EPA, vintage 1990-1993; Scott questioned this data source; and Sherrill indicated that a newer source, Idaho GAP data—based on 2000-2001 aerial photography, has been found and would be used instead of the EPA data)

Evaluation Factors and Criteria: John indicated that the list of evaluation factors and criteria to be used in this second round of screening had been revised based on input received from the SWG at or after the last meeting. He said that these factors and criteria fall into three categories: Land ownership, Socioeconomic factors, and Environmental factors.

Land ownership is now proposed to be considered as a separate line item in the final review and short-listing of sites (i.e. at our next meeting). As pointed out by Scott at our last meeting, land ownership is not like the other factors or criteria we are considering. For the criteria in the socioeconomic or environmental categories, minimal (or no) conflict or impact is always preferred. That is not the case with land ownership because varying ownership conditions and differing opinions effect whether public land or private land is a preferred condition for getting a project built. This is why we have taken land ownership out of the multi-criteria analysis and made it a line item to be considered side-by-side with the results of that analysis.

Socioeconomic factors and associated criteria include:

- Land Use
- Recreation
- Infrastructure

Displacement/Removal of:

- Residential uses
- Other developed uses (C/M/I)
- Irrigated/developed agriculture
- Developed sites
- Noted fishing reach
- Noted boating reach
- Roadways/highways
- Other (e.g. pipelines, transmission lines)

Environmental factors and associated criteria include:

- Federal ESA Species
- State Species of Concern
- Protected Land/River Status-Federal
- Protected Land/River Status-State

Removal of/Incompatibility with:

- Bull Trout migratory or over-wintering habitat
- Other candidate species habitat
- Specie(s) habitat
- Candidate W&S or WSA
- Other special designation (see slide)
- Designated Recreation river
- Conservation priority area (per IDFG CDC)

John also noted other factors and/or criteria that had been suggested by SWG members but judged not applicable or feasible at this level of planning. He noted that comparing impacts on water quality, stream morphology, and cultural resources had been suggested, but we are not at a level of detail where these can be reasonably assessed. The same is true of project costs or cost per acre foot of storage. Finally, he

indicated that secondary reservoir benefits, such as flat water recreation, habitat, etc, cannot be meaningfully assessed as part of criteria analysis; such reservoir benefits are generally common to all options and we have insufficient detail at this level to distinguish potential differences among the options.

Scott Campbell began SWG commentary on the factor/criteria lists by taking issue with the assertion that reservoir benefits could not or should not be considered in the criteria analysis. He referred specifically to the recreation criteria, noting that probably any reservoir would have an adverse impact on stream fishing, but that this fishing would be replaced by a different kind of fishing. The same is true of boating. He indicated that we should be looking at the benefits as well as the impacts or the downside of these options.

In response to Scott's concern, John P. stated that benefits are perhaps the primary motivation for this study. We are simply making a distinction in our analysis between impacts or constraints and benefits. Benefits are being considered in more of a parallel fashion, rather than being embedded in the constraints analysis. In the final analysis, in choosing a final short list of possible storage options, benefits will be considered, as will land ownership considerations and perhaps some of the major cost items.

Other specific comments on the criteria list included:

- John P. noted that John Olson of EPA, who could not make this meeting, had sent an email indicating his conviction that the State Recreation River designation does prohibit reservoirs, and all options on Recreation Rivers should be eliminated. John P. reiterated the reasoning behind making the distinction between Natural and Recreation designations at the State level: the State has in fact noted possible reservoir sites on rivers that have a Recreation designation, and has retained discretion to consider reservoirs in the future. This is not the case with rivers designated Natural. Thus we are interpreting the Recreation designation as "evaluation" rather than an "exclusion" criterion. Certainly, when we get into the relative importance part of our analysis, to be discussed later, this designation can be assigned a high importance in one or more of the scenarios we run to see how that effects which sites/options rise to the top of the "performance" list.
- The source and rationale behind the State Conservation Priority criterion was questioned. Jeff Dillon of IDFG indicated he was not familiar with this designation. John P. indicated that the criterion had been suggested by John Olson in an email subsequent to the last SWG meeting, and that the planning team would pursue this question further with IDWR/CDC before applying the criterion in the analysis.
- Jeff Dillon stated that big game winter range should be added to the list of environmental factors. Discussion then addressed the question of whether this should be [1] a separate factor from "State species of concern" or [2] included within that factor. John P. indicated that the question basically centered on whether winter range was equivalent (in terms of level of concern) to the habitat for specifically designated species of concern such as Redband Trout. Jeff felt that since all of the factors/criteria on the list now are for evaluation purposes (i.e. would not in themselves eliminate an option), there is no reason why we needed to separate the two. It was decided to simply include big game winter range within Species of Concern.
- Scott stated that hydropower should be recognized as a reservoir benefit, applicable to most, if not all, of the options being considered. This is true despite the fact that the planning team asserts these benefits cannot be analyzed in detail. Right now, the slide entry noting benefits includes recreation and habitat, but not hydropower. John P. said that hydropower would definitely be added to the list of benefits.

At a broader level, Scott voiced two concerns:

[1] This list of criteria is going to be used to eliminate possible sites because of incompatibility, and this action is not valid in at least some cases. A good example is big game winter range; there is nothing in state law that would prohibit a reservoir due to effects on this type of habitat. Certainly, winter range is not even close to being as constraining as federal T & E status; and,

[2] This whole analysis is skewed toward looking at factors that militate against a given site, rather than those that militate in favor of a site or sites. Yes, some segment of the population is concerned about the adverse impacts, the factors on this list. However, there is also a segment of the population that would focus on the relative benefits among sites and care far less about the factors on this list. To focus only on the downside is prejudicing the whole process. These studies and reports have a life of their own and to emphasize impacts/problems and ignore benefits is wrong.

John P. responded to the first concern by stressing that this second round of criteria screening is coming from the perspective of looking for the best performing sites, the sites with the least impact, rather than trying to eliminate sites. By definition, none of the criteria on the list being discussed today would warrant elimination or exclusion of a site. In addition, it is true that some of the factors/criteria on the list may be more important or more influential than others in decision-making, and opinions on which among them are more or less important can vary. That is why we are going through a relative importance exercise. We intend to find out how differing points of view on what is important effects which sites rise to the top of the list.

On the second point, John P. reiterated the view that this whole study is predicated on the potential benefits of new storage (i.e. meeting consumptive use demand, providing flood control, etc.). However, at this study's level of detail, "secondary" benefits such as recreation, habitat, or hydropower were pretty much generally applicable to all sites, and meaningful distinctions among sites could not be discerned. Given this perspective, the constraints/impacts analysis is the primary tool available to us in getting from a list of roughly 60 sites down to a short list for further, more detailed consideration.

Scott stressed that he wanted to be on record as believing that benefits can and should be included in this analysis. He believes that not to do so biases the whole process.

John wrapped up this part of the discussion by recognizing Scott's concerns, and saying [1] that benefits would be looked at (to the extent they could be defined) side-by-side with impacts during the short-listing process, and [2] the whole study design is not so rigid that it will take such components as the impact comparison as the final word, without scrutiny and professional judgment. Overall, when we get to the point of deciding on our final short list, there is room for keeping sites in consideration due to unique benefits or other factors, despite perhaps "not-so-stellar" performance from an impact perspective. Also, benefits may also turn out to be "tie-breakers", along with land ownership or major cost perspectives.

Comparative Analysis—Analytical Process

John then moved to discussion of the technical process to be used in comparing sites/options against the socioeconomic and environmental factors and criteria. He reiterated that the goal is to search for the most suitable sites in both the Boise and Payette basins.

The process will follow two fundamental steps:

1. Objectively score potential site impacts, according to all criteria, and then
2. Scale objective score by subjective "relative importance" feedback.

John indicated that the second of these would actually be discussed first, while the factor and criteria list was fresh in everyone's mind. He began by going over the basic working assumptions underlying the relative importance analysis:

- Not all criteria are equal in importance
- All factors may not be equal in importance
- All categories may not be equal in importance
- Points of view vary among stakeholders
- This is only a tool
- Testing and critical review are required
- In the end, there is no substitute for professional judgment

John stated that the team intends to run several scenarios reflecting the differing points of view expressed in SWG input on relative importance. He then asked that the SWG take 10 minutes to provide their input on the worksheet provided (copy included herewith as Attachment 2). He noted that the team was asking for relative importance ratings at the criteria, factor and category levels to ensure flexibility in conducting the scenario analysis; most likely the rating that would be most useful would be the criteria and category levels.

Jeff Dillon asked what the definition was of residential land use, noting that there was quite a difference between a couple trailer homes and a full subdivision. John responded that residential generally means one unit per 5 or 10 acres and denser. However, he was not sure where the database we are using draws that line. He indicated that we should just look at the question generally and recognize that impact to residential land use means that homes and residents would be displaced.

Scott Campbell asked whether factors or criteria could be given a zero rating, rather than 1, 2, or 3 (i.e. having no importance at all in screening sites). John responded yes.

(The meeting then entered a 10 minute combination break and worksheet completion session period)

After the break, the relative importance worksheets were collected and John began the explanation of how the objective impact scores would be assigned to each site and how the relative importance input would be used.

First, units of measure for reporting constraints are selected to make sure that all sites are treated equally (i.e. to avoid situations where larger reservoirs are at a disadvantage just because of their size). The units selected are acres, miles, or occurrences per 10,000 AF of storage, as applicable. Examples would include: acres of residential land use effected, miles of road relocated, or numbers of recreation sites displaced per 10,000 AF.

Using these units of measure, the range of impacts among the sites related to any given criterion would be divided into thirds and impacts scores would be assigned as follows:

- Top third of the range = high relative level of impact = a score of 1
- Middle third of the range = moderate level of impact = a score of 2
- Bottom third of the range = low level of impact = a score of 3
- No impact = a score of 4

To illustrate, John went through the following example: Assume the range of impacts to residential land uses among all the sites was 0 to 300 acres. In this case, sites with 201 to 300 acres of impact would get a score of 1, sites with 101 to 200 would score a 2, sites with 1 to 100 would get a 3, and sites with no impact would get a 4.

Scott asked why the scale of these scores appeared to be reversed from that used in the relative importance values, where low importance got a rating of 1, moderate got a 2, and high importance got a rating of 3. John responded that the system was set up so that the highest score was the best. (e.g. a criterion of high importance—rated a 3 x a no impact result—a score of 4 = a weighted score of 12)

Tom Haislip pointed out that the team is also planning to explore a graphic method of arraying the objective, simple impact scores (i.e. something similar to consumer reports rating symbols). John pointed out an example of this in the slide show and explained that it is often quite useful to use a graphic technique like this before any application of relative importance ratings. Frequently, those options which perform the best can be easily discerned by looking at the symbol “scores”. We intend to prepare such a graphic results matrix as a tool for interpreting results at the next meeting.

John finished the process description with a slide showing how the relative importance values would be applied:

- Start with impact score for each criterion (i.e., 1,2,3,4)
- Multiply by relative importance “scaling factor” at any of three levels...
 - Each Criterion: Impact score x importance rating (1=low, 2=moderate, 3=high importance)
 - By Factor: Sum of criteria scores x importance rating (1=low, 2=moderate, 3=high importance)
 - By Category: Sum of factor scores in category x assigned portion of 100 points

John and Sherrill wrapped up the discussion overall by emphasizing again that the impact scoring and relative importance analysis is only one tool we are using. In the end, there is no substitute for professional judgment. Sherrill noted that our ultimate objective is not necessarily to find the sites with the top scores, regardless of other considerations. Instead, we are looking for the best mix of options in each basin, based on fulfillment of needs/benefits, hydrologic performance, and impact/constraint performance.

Agenda Item 4: Wrap Up and Next Step and Final Q&A’s

John stated that the team’s intention was to get at least some of the analytical results out to the SWG for review ahead of the next meeting.

Scott had a final question regarding the river list for the Payette: How did we determine the capacity of the Indian Creek Basin site? Sherrill responded that in the literature it was represented as an off-stream facility that would receive water from the South Fork of the Boise River, not Indian Creek. This is also true for the Firebird site, which is actually an off-stream transfer from the Black Canyon reach on the Payette River. The meeting adjourned at approximately 11:00 AM

IV. Next Meeting

The next meeting will be on January 17, from 9:30 AM to Noon, at Reclamation’s Snake River Area Office.

Attachment 1

Boise/Payette Basin Storage Assessment
Final List of Sites For Second Round of Screening Analysis

Boise River Basin	Type	Capacity Range (AF)
Alexander Flats	Onstream	50,000
Barber Flats	Onstream	50,000
Casey Ranch	Onstream	50,000
South Fork Boise River	Onstream	50,000
Twin Springs	Onstream	50,000
Cat Creek	Off-Stream	50,000
Coyote Butte	Off-Stream	50,000
Dry Creek	Off-Stream	50,000
Dunnigan Creek	Off-Stream	50,000
Firebird	Off-Stream	50,000-150,000
Grimes Creek	Off-Stream	50,000
Indian Creek-Mayfield	Off-Stream	50,000
Krall Mountain	Off-Stream	50,000
Moore's Flat	Off-Stream	50,000
Pioneerville	Off-Stream	50,000
Rabbit Creek	Off-Stream	50,000
Anderson Ranch	Existing	29,000
Arrowrock	Existing	6,300
Little Camas	Existing	??
Lucky Peak	Existing	35,000

Payette River Basin	Type	Capacity Range (AF)
Archie Creek	Onstream	50,000
Big Pine Creek	Onstream	50,000
Boiling Springs	Onstream	50,000
Cabarton	Onstream	50,000-300,000
Cottonwood Creek	Onstream	50,000
Deadwood Canyon	Onstream	50,000
Gold Fork	Onstream	50,000
Horseshoe Bend	Onstream	50,000-300,000
Ola	Onstream	50,000
Oxbow Bend	Onstream	50,000
Smith Ferry	Onstream	50,000-300,000
Anderson Creek	Off-Stream	50,000
Big Willow Creek	Off-Stream	50,000-150,000
Birding Island	Off-Stream	50,000-150,000
Bissel Creek	Off-Stream	50,000-150,000
Dry Buck Creek	Off-Stream	50,000-300,000
Gold Fork	Off-Stream	50,000-300,000
High Valley	Off-Stream	50,000-200,000
Little Willow Creek	Off-Stream	50,000-150,000
Lower Squaw Creek	Off-Stream	50,000-200,000
Middle Fork Payette River	Off-Stream	50,000-300,000
Round Valley	Off-Stream	50,000-300,000
Sand Hollow	Off-Stream	50,000-150,000
Scriver Creek	Off-Stream	50,000-300,000
Tripod Creek	Off-Stream	50,000-300,000
Upper Big Willow Creek	Off-Stream	50,000-200,000
Upper Shafer Creek	Off-Stream	50,000-300,000
Upper Squaw Creek	Off-Stream	50,000-200,000
Warm Spring Creek	Off-Stream	50,000
Wash Creek	Off-Stream	50,000
Big Payette Lake	Existing	35,000
Black Canyon	Existing	??
Cascade	Existing	50,000
Deadwood	Existing	25,000
Horsethief	Existing	??
Little Payette Lake	Existing	16,500
Paddock Valley	Existing	25,000
Sage Hen	Existing	??

Payette River Basin	Type	Capacity Range (AF)
Archie Creek	Onstream	50,000
Big Pine Creek	Onstream	50,000
Upper Payette Lake	Existing	??

Attachment 2

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Relative Importance Values Worksheet

Instructions: This worksheet is designed to solicit SWG input regarding what is most important in comparing surface storage options. Specifically, your input on the relative importance among categories, factors, and criteria will be used to seek the "best" surface storage options for further evaluation. Although we are striving to use as little numeric "processing" as possible, we need to understand how differing points of view regarding what is considered "best" affects the comparative analysis.

Relative importance can be assigned at each of the three levels (categories, factors, and criteria). Until we get your feedback, we cannot know which level yields the most meaningful or informative results. Please consider each level separately, and insert your values in the worksheet according to the instructions for each level.

1. Category Level: Distribute 100 points between the two categories (e.g. Socioeconomic: 55, Environmental: 45).

2. Factor Level: Rate each factor against all others, regardless of category.
 Ratings are:
 1 = Low Importance 2 = Moderate Importance 3 = High Importance

3. Criteria Level: Rate each criterion against all others, regardless of factor or category. Ratings are: 1 = Low Importance 2 = Moderate Importance 3 = High

			Relative Importance Value Options		
Category	Factors	Criteria	Criteria Level	Factor Level	Category Level
Socioeconomic Factors	Existing Land Use	Displaces residential uses			
		Displaces other developed uses			
		Displaces irrigated agriculture			
	Recreation	Displaces recreation site(s)			
		Eliminates noted fishing reach			
		Eliminates noted boating reach			
	Infrastructure	Displaces road/highway			
		Displaces other (e.g. pipeline, transmission line, comm. facility)			
	Environmental Factors	Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed)		
Removes candidate species habitat					
State Species of Special		Removes species habitat			
		Protected Land/River Status: Federal	Candidate Wild & Scenic or within Wilderness Study Area		
Located in one of the following: Designated Roadless Area Research Natural Area Area of Critical Env. Concern					
Protected Land/River Status: State		Designated Recreation River			
	Conservation Priority area (per IDFG CDC)				

RECLAMATION

Managing Water in the West

Boise/Payette Basin Storage Assessment

Stakeholder Working Group: Meeting 6 Agenda

March 14, 2006

Introductory Note:

The purpose of this final Stakeholder Working Group meeting is to discuss and get comments on the Draft Water Storage Assessment Report in a forum where Group members can hear and understand each other's points of view. The intent is to "short-circuit" the difficulties often arising from conflicting comments/viewpoints by collectively discussing and, to the extent possible, reaching agreement on the approach to and substance of necessary Report revisions. Given this intent, the focus of discussion will be on broad perspectives such as data adequacy, data interpretation, logic and clarity of presentation, credibility of judgments, decisions, and conclusions, etc. We do not want to use Group time to deal with minor edits and will not be going through the document page-by-page (we do request that Group members follow up with written summaries of their detailed comments as an aid in perfecting the final version of the Report). Given this intent, the following agenda is intended to [1] serve as a general guide for an orderly section-by-section discussion, and [2] help ensure that we manage our time in order to get fully through the report. Adjustments can certainly be made.

9:30 am Introduction

- Meeting objectives and review of agenda
- Meeting 5 summary—comments and approval

9:40 am Overall Impressions

- Round-table introductory commentary
- Suggested adjustments to discussion format or time allotments

10:00 am Chapter 1 — Introduction

- Purpose
- Stakeholder Working Group description
- Assessment Area

10:20 am Chapter 2 — Preliminary Water Supply Target Volumes

- Basis and Limits
- Tier 1: Consumptive Uses
- Tier 2: Flood Control
- Tier 3: Discretionary
- Summary

- 10:40 am** **Chapter 3 — Water Storage Opportunities I.D. & Screening**
- Summary of Available Information
 - Initial Screening Process (criteria, process, conclusions)
 - Secondary Screening Process (benefits discussion, comparative analysis [hydrologic, socioeconomic & environmental constraints, needs response/benefit attainment], and areas of opportunity)
- 11:20 am** **Chapter 4 — Evaluation of Potential “Areas of Opportunity”**
- Comparison of Technical Attributes
 - Cost Considerations as a gauge
- 11:35 am** **Chapter 5 — Discussion**
- 11:45 am** **Executive Summary**
- 11:55 am** **Next Steps**
- Action items from this meeting
 - Schedule for final report production
- Noon** **Adjourn**
-

RECLAMATION

Managing Water in the West

Boise/Payette Basin Storage Assessment

Meeting Summary: Stakeholder Working Group Meeting 6

March 14, 2006

I. Introduction

This document is a summary of the sixth meeting of the Stakeholder Working Group for the Boise/Payette Basin Storage Assessment. The meeting was held March 14, 2006, from 9:30 a.m. to 12:00 p.m. at Reclamation's Snake River Area Offices in Boise, Idaho. The meeting agenda was sent to all stakeholders prior to the meeting; this summary is organized according to the headings/topics of that agenda.

II. Meeting Attendees

Reclamation Planning Team:

John Tiedeman Reclamation--PN Regional Office, Activity Manager	Sherrill Doran CH2M HILL
John Petrovsky John Petrovsky Associates	Jenny Kindig CH2M HILL
Lesa Stark Reclamation--Snake River Area Office Planning Program Manager	Paula Gustafson CH2M HILL

Stakeholder Representatives:

Norm Semanko Idaho Water Users Association	Kevin Lewis Idaho Rivers United
Ron Shurtleff Water District 65	Marc Shigeta Payette County
Jeff Dillon Idaho Department of Fish and Game	Mary McGown Idaho Department of Water Resources
John Olson EPA	Scott Campbell Pioneer ID
Bryce Farris Meridian Irrigation District	Lane Jolliffe Congressman's Otters office
Mike Holladay Holladay Engineers	

III Meeting Summary

Agenda Item 1: Introduction

Meeting objectives and review of agenda: The purpose of this final Stakeholder Working Group meeting was to discuss and get comments on the Draft Water Storage Assessment Report in a forum where Group members could hear and understand each other's points of view. The intent was to "short-circuit" the difficulties often arising from conflicting comments/viewpoints by collectively discussing and, to the extent possible, reaching agreement on the approach to and substance of necessary Report revisions. Given this intent, the focus of discussion was on broad perspectives such as data adequacy, data interpretation, logic and clarity of presentation, credibility of judgments, decisions, and conclusions, etc. The report was discussed at the Chapter/Section level, rather than page-by-page; SWG members were requested to provide editorial or minor comments separately in writing.

Meeting 5 summary—comments and approval: There were no comments or corrections to the Meeting 5 summary.

Agenda Item 2: Overall Impressions

The first part of the discussion was a round-table commentary by each SWG member in turn summarizing their general impressions regarding the draft report (e.g. response to study objectives, accuracy, clarity, etc.). Points and observations made by SWG members included:

- The report (and the Assessment process itself) is beneficial in providing an organized review of the many candidate reservoir sites identified over time in these basins and comparing them against one-another. Of particular value has been the hydrologic analysis, to see if and how much water is actually available for additional storage. However, regarding the conclusions on Areas of Opportunity (including source streams and reservoir sites), the report needs to be clear that environmental constraints data and analyses were very general and broad-scale. The report should not lead readers to conclude that these Areas of Opportunity have no significant environmental or socioeconomic constraints/impacts; while they may appear to be the least constrained in many cases, more detailed analysis may reveal that some or all do have significant impacts. The report should be clear on both [1] recognized constraints in each Area of Opportunity, and [2] the fact that more detailed, site-specific analysis is necessary before firm conclusions are drawn.
- Similarly, the report reflects a general analysis of potential growth in demand for water and benefits of additional storage (e.g. flood control). The fact that there are uncertainties and potentially wide margins of error in these estimates (e.g. population projections) should be clearly communicated in the final report.
- The report seems to confuse the Water Resource Board with the Department of Water Resources in some cases. In preparing the final report, the proper distinction between these two entities should be made, especially when attributing data or recommendations.
- We need to recognize that, while this study has been conducted with the participation of the SWG, this process is not the same as public involvement. As/if this process moves into more detailed levels of study, the broader public will no doubt weigh-in on what is feasible, justified, desirable, etc.

- The report needs to do a better job of communicating the urgency of developing additional water supplies. There are serious conflicts among existing water uses/users, water rights holders, environmental interests, etc., all in a context of increasing demand for water. Environmental litigation threatens to eliminate reservoir space. Efforts are on-going to restrict further use of groundwater. The need to develop additional supplies is what drives this study; many clearly see a need for more storage given ongoing conflicts and concerns, the Nez Perce agreement, Endangered Species Act litigation, and other dynamics. This Assessment is a way to deal with an impending crisis before it becomes one, and we are missing a clear focus to educate.
- The report should also be clear and unequivocal regarding the need for additional flood protection and role that additional storage space can play in preventing flood damage. This need is specific to the Boise basin at this point in time, and one SWG member suggested that this study may not have included a sufficient range of possible storage options in the Boise to meet this need (the commenter indicated he would provide more perspective in this regard as part of his written comments).
- Some SWG members indicated that they had not had the chance to review the draft report in detail and requested additional time for careful review and preparation of written comments (see Next Steps, below).
- Overall, the study/report does what it needed to do: It takes a list of over 200 possible storage sites, identified by different entities at different times and for different reasons over the past several decades, and conducts a defensible screening process to identify those that appear to be the most promising options for further study. The decision to identify Areas of Opportunity, rather than individual reservoir sites alone, is a good way of bringing this study to a valid conclusion, especially considering the very general level at which the comparative analysis has been conducted. This work will be a good starting point for more detailed studies/analyses; and it has been recognized all along that flexibility remains to add or subtract specific sites from consideration based on the findings of more detailed analysis.

Agenda Item 3: Chapter 1

Comments and questions on Chapter 1 included:

- In Section 1.1.1, why do we not refer to Congressman Otter by name as the impetus for this study and provide detail on the meetings held under the Congressman's auspices that led to this study? In answer to these questions, John Tiedeman responded that [1] it was felt that all the legislators would support this effort and it was not necessary to identify one in particular, and [2] the team did not have records on those earlier meetings. SWG members who participated in the earlier meetings indicated that notes were taken and they would try to forward a summary to Reclamation. It was decided that the report [1] would mention Congressman Otter by name, and [2] assuming the information could be located, would provide additional detail on the substance and conclusions of the prior process.
- Related to the above, it was also noted that the need for additional storage has been discussed for a long time (reference the number of studies on the subject), and it was not just Congressman Otter's initiative that suggested a priority on exploring new storage opportunities.
- On Page 4, after Pioneer, insert Settlers.

- In Section 1.3.1.3, the statement is made that agricultural is a \$200 million industry in the study area. This figure must mean some small sub-set of the agriculture industry. For example, the dairy industry alone is \$1.4 billion. We need to check where that \$200 million figure comes from, what it describes, and make sure the data we are using is accurate.
- Throughout the report, in discussing irrigation, a clear distinction needs to be made between agricultural irrigation and watering of ornamental landscapes in urbanizing areas.
- Chapter 1 needs to clearly state that, based on current projections and water use patterns, water demand is rising and there is (or will be) a need for new storage. SWG members making this point offered to provide some suggested language in their written responses.
- As a counterpoint to the above assertion, one SWG member noted that a need for additional storage was not absolutely proven, given the range of potential error in demand/use projections, specific responses in areas such as conservation and re-use, etc. Care must be take to state the case for new storage dispassionately...this is not a sales document.
- On Page 14, second paragraph, in reference to “minimum instream flows”, the question was asked whether or not these flows have either legal standing or scientific weight. The point was made that we need to be very clear on the origin of these minimum flow numbers. Most are not legal minimums (i.e. not adopted by the Water Resource Board) and there is doubt about at least some that they are really effective in protecting biological resources. Sherrill indicated that, yes, most do not have the force of law, however, the language used in the report was derived from IDWR sources. SWG members concerned with this point offered to provide some suggested language to clarify the minimum instream flow reference.

Agenda Item 4: Chapter 2

Comments and questions on Chapter 2 included:

- Page 20: Clarify what the 100-year regulated flood event on the Boise River means in terms of using storage space in the three existing reservoirs.
- Page 21, last full paragraph: Scott Campbell will provide suggested revisions to the narrative about the role that additional storage in the Boise and Payette systems could play in meeting salmon flow targets, and how this would relate to requirements in other parts of the Snake River system.
- Several clarifications were requested on the data, assumptions and narrative dealing with estimates of potential growth in demand for water, including: projections of growth in DCM&I demand, projections of agricultural water demand, distinctions between agriculture and ornamental landscapes when discussing “irrigation”, and the potential role of conservation. Sherrill agreed to review and clarify the discussions in the report based on SWG questions. SWG members also agreed to provide suggested revisions to help clarify the discussions, recognize limitations in available data, and avoid misunderstandings among their constituents.
- Related to the above, it was reiterated that this Assessment was not intended to provide new water demand analysis or detailed study of such dimensions as conservation. The information in the report regarding projected increases in water demand is derived exclusively from existing IDWR and other sources. Information on the potential role of conservation is based on real-world examples from other areas (since there is no conservation program in this region). The fact that there are many variables and uncertainties influencing future growth in demand is the main reason the report uses such wide ranges to portray potential future needs.

Agenda Item 5 and 6: Chapters 3 and 4

Comments and questions on Chapters 3 and 4 included:

- In Section 3.1.1.2, the language used to describe potential dredging of Cascade Reservoir to gain additional storage volume is un-necessarily negative. The potential for impacts applies to only one approach to dredging, not all. We should just state that dredging has been discussed as an option and indicate that there are varying approaches regarding where dredging might occur.
- On the subject of reallocating contract water, we need to be very careful. What is in the report now can be inferred to mean that reallocation might impact existing water right/water contract holders (i.e. by somehow allowing their rights to be taken/reallocated). This would be extremely controversial to say the least. Lesa Stark stated that the intent is not to impact existing water rights/contracts in a negative or restrictive way; instead, the idea discussed in the draft report is to provide water right/contract holders more flexibility in where and how the water is used. It was agreed that the report would be revised to make the intent more clear. SWG members knowledgeable on the legal aspects of water rights and contracts will also provide suggested new language on this subject in their written comments. The bottom line on this subject is that we want to communicate the fact that additional flexibility in how and where water in existing storage facilities is used may be one of many tools used over time to help meet growing demands, prevent shortages, provide flood storage, etc. Beyond this straightforward observation, we need to make it clear that our job in this Assessment is to focus on opportunities for new storage, and not on how existing storage is allocated or administered.
- In Section 3.2, Initial Screening Process, it is unclear exactly how the four “exclusionary” criteria were applied in getting from the starting list of over 200 sites to the ~60 that were carried forward into the secondary screening analysis (i.e. did a candidate site need to be rated “good/acceptable” on all four criteria to be carried forward?). The Assessment should provide more clarity on this process.
- For the record, there is still discomfort on the part of some SWG members about how particular initial exclusionary criteria have been interpreted, in particular, bull trout and state-designated Recreation rivers. Some SWG members believe that any involvement with bull trout habitat (in any aspect or life stage) will ultimately weigh heavily against potential sites. Also, our process assumes some flexibility for reservoir development on state-designated Recreation rivers; while the State language describing Recreation rivers can be interpreted as prohibiting reservoir development. Discussion of these points essentially reiterated earlier deliberations by the SWG. The above perspectives may carry considerable weight in any final decisions on reservoir sites. However, there are alternative points of view that may be equally valid: [1] The ESA allows for mitigation to reduce or eliminate impacts—an approach which could be effective for the bull trout habitat components assigned to a “non-exclusionary” status in our analysis; and [2] the State Water Plan does recognize potential for reservoir development on one or more Recreation rivers—tending to caveat the language describing allowed uses on Recreation rivers. Given these uncertainties, the subject criteria should not be treated as completely exclusionary at our broad level of analysis. To do so would be stretching our data and our understanding of on-the-ground conditions beyond their credible limits.
- The footnote (#13) at the bottom of page 35 is inaccurate; no such discussion exists in Section 3.3.3.
- The Areas of Opportunity map should clearly show which candidate reservoir sites are associated with each source stream reach.

- The addition of cost considerations in Chapter 4 without equal treatment of potential economic benefits is viewed by some SWG members as presenting a skewed perspective. Including only costs casts a negative light on potential new storage projects; yes, the cost may be high, but there are counterbalancing benefits. The suggestion was made to either treat costs and benefits equally, or eliminate the detail on cost numbers (i.e. describe only the generic cost components, such as dam, conveyances, etc. without numbers attached).
- As a counterpoint to the above concern about the cost information, other SWG members indicated that it is valuable to see what the relative costs might be for projects in the Areas of Opportunity. Associated with this perspective, it was noted that the cost of environmental mitigation (which was only estimated as a percent of total construction cost estimates) could be quite understated. John Tiedeman indicated that we could not really get any more specific than the general percentage allocation for environmental compliance included in the cost data.
- Lesa Stark agreed to re-visit the question of cost information based on SWG comments at this meeting and perhaps reflected in subsequent written comments.

Agenda Item 7: Chapter 5

The primary observation made about this Chapter was that it appears too restricted to Reclamation's perspective. It assumes that Reclamation would be involved in the next phases of study and in any eventual development of new storage. While Reclamation may very well be involved, even central, in the next steps, the report should also recognize that the State, other public entities, or even private entities could independently initiate the next levels of study and could pursue development of additional storage without Reclamation's participation. SWG members agreed to provide suggested narrative along these lines.

Agenda Item 8: Executive Summary

The only comment made on the Executive Summary was that it refers to flow augmentation as an ESA requirement. This is inaccurate. The biological opinion allows/sets targets for augmentation, but these are not a legal, mandatory requirement. This clarification to the Summary should be traced through the full report to make sure that this inaccuracy does not appear elsewhere.

Agenda Item 9: Next Steps

- As noted above, additional time was requested by some SWG member for review of the report and preparation written comments. Wednesday, April 12, 2006 was agreed to be a preliminary new target date (subsequently confirmed by John Tiedeman of Reclamation via email on March 17).
- SWG members asked about access to electronic versions of the draft report for use in preparing comments and suggesting specific revisions. It was noted that electronic versions of the report and all appendices were available on Reclamation's website.
- In light of the fact that some substantive revisions may be made to the report based on discussion at this meeting and subsequent written comments from SWG members, the question of a second SWG review was raised. Lesa Stark indicated that Reclamation would make that determination and inform the SWG once all written commentary was received.
- SWG members asked about the next steps, beyond this Assessment, for studying the potential or pursuing realization of additional storage. Lesa Stark indicated that the step would be an

Appraisal-level study, which would require a 50% non-federal cost-share partner if performed by Reclamation; and it is such a partner who would need to take the initiative.

IV. Next Meeting

Right now we have no other meetings scheduled. On behalf of the Reclamation team, John Petrovsky thanked the SWG for their contribution and perseverance, and adjourned the meeting.

RECLAMATION

Managing Water in the West

Boise/Payette Basin Storage Assessment

Stakeholder Working Group: Meeting 5 Agenda

January 17, 2006

9:30 am Introduction

- Meeting objectives and review of agenda
- Meeting 4 summary—comments and approval

**9:40 am Surface Storage Options—
Results of 2nd Round Screening Process**

- Introduction—Review of Process
- Results of MODSIM analysis—Influence on short-listing of storage options
 - Planning team presentation
 - Discussion/Q&A
- Results of Socioeconomic and Environmental Constraints Analysis
 - Planning team presentation
 - Adjustments to criteria list
 - Characterization of Relative Importance input
 - Preliminary short lists (both basins)
 - Discussion/Q&A
- Influence of Geographic and Land Ownership Considerations
 - Planning team presentation
 - Opportunities in each basin—purposes and benefits
 - Land ownership review
 - Modified short lists (both basins)
 - Discussion/Q&A
- Next steps—toward a final shortlist, draft water supply feasibility report

11:45 am Wrap up, Next Steps, & Questions/Answers

- Review of action items (and responsibilities) emerging from this meeting
- Date, time and content of next meeting

Noon Adjourn

RECLAMATION

Managing Water in the West

Boise/Payette Basin Storage Assessment

Meeting Summary: Stakeholder Working Group Meeting 5

January 17, 2006

I. Introduction

This document is a summary of the fifth meeting of the Stakeholder Working Group for the Boise/Payette Basin Storage Assessment. The meeting was held January 17, 2006, from 9:30 a.m. to 11:00 a.m. at Reclamation's Snake River Area Offices in Boise, Idaho. The meeting agenda was sent to all stakeholders prior to the meeting; this summary is organized according to the headings/topics of that agenda. Also, a hard copy of the PowerPoint presentation referenced herein was distributed to all meeting attendees; for this reason, the full content of the slideshow is not reproduced here.

II. Meeting Attendees

Reclamation Planning Team:

John Tiedeman Reclamation--PN Regional Office, Activity Manager	Mark Bransom CH2M HILL
John Petrovsky John Petrovsky Associates	Sherrill Doran CH2M HILL
Lesa Stark Reclamation--Snake River Area Office Planning Program Manager	Tom Haislip CH2M HILL
Jenni York CH2M HILL	Jenny Kindig CH2M HILL

Stakeholder Representatives:

Dan Steenson Ringert Clark Chartered	Kevin Lewis Idaho Rivers United
Ron Shurtleff Water District 65	Tim Page Boise Project Board of Control
Jeff Dillon Idaho Department of Fish and Game	Mary McGown Idaho Department of Water Resources
John Olson EPA	Scott Campbell Pioneer ID
Jonathan Parker Idaho Water Users Association	Lane Jolliffe Congressman's Otters office
Kathy Peter U.S. Geologic Survey	Jerrold Gregg USBR
Mike Holladay Holladay Engineers	

III Meeting Summary

Agenda Item 1: Introduction

Meeting objectives and review of agenda: John Petrovsky opened the meeting by reviewing the agenda and objectives for the morning and making sure everyone had all the hand-out materials, including the agenda, the powerpoint presentation, a table showing the average relative importance scores derived from stakeholder input at the last meeting, a map of the short-list storage options, and a draft outline of the final report. He noted that the primary purpose of the meeting was to review the results of the second round screening process, focusing on a proposed final shortlist of storage options to be identified in the Assessment report as candidates for further study. A secondary objective was to distribute for SWG comment a draft outline of the Assessment report. Thus, the group is reaching the culmination of its efforts. Upon receipt of SWG input and comment at this meeting, the planning team will prepare a draft of the Assessment report for SWG review. This report will be the subject of the final SWG meeting.

Meeting 4 summary—comments and approval: There were no comments or corrections to the Meeting 4 summary.

Agenda Item 2: Surface Storage Options—Results of 2nd Round Screening Process

Introduction—Review of Process: John P. began the presentation of study results by summarizing the three parts of the screening analysis used to get us from the 60+ sites/options on the list of candidates at the last SWG meeting to the proposed final shortlist presented today:

- **Hydrologic analysis, using Reclamation’s MODSIM model:** Estimating [1] the total amount of water that is reliably available for new storage in each basin considering existing water rights and contracts, minimum flow requirements, and other constraints in the system, and [2] the proportion of that available water that could be stored at each candidate site given its location in the watershed.
- **Socioeconomic and Environmental Constraints Analysis:** Using the criteria defined at prior meetings, and considering the relative importance input provided by the SWG at the last meeting, determining the level of socioeconomic and/or environmental constraints apparent at each candidate site. The intent of this analysis is to identify those sites likely to have the fewest constraints in terms of socioeconomic or environmental impacts.
- **Geographic and Land Ownership Considerations:** Reviewing the results of the first two steps to make sure that the final shortlist of candidates identified in this Assessment offers options in each basin, with the capability of meeting each of the demand/water use types identified (e.g. consumptive uses, flood control storage, flow augmentation, etc.). This is particularly important relative to the Boise basin, where water availability is lower and constraint conditions are generally higher than the Payette. Despite these conditions, some needs/benefits (such as flood control) cannot be met in the Payette. Thus, the most promising options in the Boise need to be identified even though they might not perform as well in the constraints screening process.

This final step in the screening process also looks at maintaining a range of ownership conditions (i.e. not biasing the shortlist in favor of purely public or purely private lands).

The result of these three analyses is the proposed shortlist of options reflected on the map distributed earlier.

John then turned the meeting over to Sherrill Doran who led the presentation and discussion of study results.

Results of MODSIM Analysis: Sherrill first summarized important aspects of the MODSIM model and key assumptions made in arriving at the results being presented at this meeting. Primary points included:

- The model relies on the hydrologic record from 1927 to 2000 to predict the probabilities for reservoir filling and water deliveries under a wide range of conditions, from dry/low-flow years to wet/high-flow years.
- The model relies on the hydrologic record from 1927 to 2000 to predict the probabilities for reservoir filling and water deliveries under a wide range of conditions, from dry/low-flow years to wet/high-flow years.
- All existing reservoirs, water contracts, water rights, regulatory or administrative minimum flows, and other relevant aspects/realities of current operations are included and can be considered as “givens” in analysis. This also includes return flow estimates related to existing facilities.
- When evaluating sites for new reservoirs, recorded data are used for those at or near gauge location; for un-gauged sites, the data are extrapolated.
- Assessment of potential water availability (or reliable yield) for both the overall watershed and individual sites in each basin has been based on the following assumptions:
 - No impacts to existing water rights, contracts or water users.
 - Maintenance of all established minimum flows, whether statutory, policy-based, administrative, or stated goal. Water can be diverted and stored year-round; there is no seasonal limitation.
 - Estimates of water volume available for storage based on 90% reliability on an annual basis (Sherrill illustrated this point by showing a sample probability curve, illustrating the full range of volume yields at probabilities from 0 to 100% for a potential site, and showing where on this curve the team has taken the estimates for each site under study—see powerpoint slide).
 - Return flows to the system from water stored at sites being studied in this assessment are not estimated. Return flows from all existing facilities is included in the analysis. This conservative assumption provides a small reinforcement to the intent of not impacting existing users, rights, contracts or minimum flows.

Sherrill then presented the fundamental findings of the MODSIM work. Based on the above assumptions, the rough maximum volume of water available annually for new storage in the Payette Basin is 300,000 acre feet; in the Boise Basin this maximum is 50,000 acre feet. Reservoir sizes (individually or in combination) in each basin can thus range up to these maximums, dependent on their elevation and location in the watershed.

SWG comments and questions on the MODSIM analysis centered on [1] the accuracy of the model--the extent of possible error in yield estimates and extrapolations, [2] the rationale for choosing a 90% reliability for watershed and reservoir storage yields, and [3] the validity of/necessity for maintaining all minimum flows.

In the first regard, the point was made that these models can, and do, have some degree of error and that this potential error should be characterized and discussed in the Assessment report. Sherrill responded that Reclamation has invested considerable time in developing and calibrating MODSIM, and its results have proved highly reliable. Nonetheless, the point is well taken—the Assessment report will contain additional detail on the model and will address the range of potential error.

Regarding the 90% reliability assumption, the point was made that such a high degree of reliability might not be needed in several scenarios for reservoir development, for example: [1] A reservoir designed to

provide 400,000 acre-feet to supplement the “demand” of 427,000 acre-feet by Reclamation and various other entities for salmon augmentation flows might be considered feasible if it fills 50% of the time; or [2] a reservoir built as a supplemental irrigation supply might only need to fill once every three years because the water is only needed a dry year. Certainly, if the goal is a reliable irrigation supply then a 90% assumption may be perfectly valid.

Discussion of this point yielded the following perspectives:

- The planning team has selected this reliability level in effort to be conservative, to test potential storage sites and volumes under the most demanding scenarios (e.g. DCMI and/or base irrigation supply). The assumption has been cited and used throughout the study process up to this point.
- The assumption has not been used to eliminate any candidate sites. However, our constraints analysis evaluated the maximum pool size at each candidate site based on the 90% reliability assumption.
- Determination of the most appropriate reliability level will ultimately depend on the demand/use scenario ultimately pursued; this consideration is assuredly relevant in follow-on, more detailed studies. In this phase of work, ranges of reliability will be presented to inform future discussions.

On the subject of minimum flows, the point was made that the minimum stream flows approved and adopted by the Water Resource Board and the legislature would be subordinate to future consumptive development. Therefore, the question arises: why were these flows retained as defacto “rules” not to be violated? Lesa Stark responded that, as with the 90% reliability assumption, we have tried to take a very conservative approach and test our options under pretty stringent requirements. This assumption on minimum flows, however, has not been used to eliminate candidate sites.

John P. wrapped up the discussion of MODSIM data and assumptions by noting that the Assessment report should include not only a statement of assumptions and limitations used in this study, but also perspective on how the choices in each key regard (such as reliability or minimum flows) might vary based on different combinations of project goals, needs, or benefits. The most important thing right now is that [1] all key assumptions have helped to validate the potential feasibility of our final short-list of options, and [2] none of the assumptions has inappropriately eliminated options from consideration.

Results of Socioeconomic and Environmental Constraints Analysis: John P. started this discussion with a review of [1] SWG relative importance (RI) input provided at the last meeting, [2] adjustments made to the criteria list during the constraints analysis, and [3] how the RI input was used in arriving at the shortlist of storage opportunities presented at this meeting:

- SWG relative importance ratings: A total of 15 responses were received from SWG members. Of these, 6 assigned higher importance to socioeconomic criteria, 6 assigned higher importance to environmental criteria, and 3 rated the two categories at equal importance. This rather fortuitous result lends credibility to our screening analysis based on the average relative importance scores derived from all of the 15 SWG responses (discussed further below).

- Adjustments to criteria list: In conducting the constraints analysis, further insight was gained on the criteria list we were using, necessitating some adjustments. These included:
 - The Recreation—Noted Boating Reach criterion was found to be redundant with the Protected Status—Designated Recreation River criterion. Analysis showed that the latter was in fact a good indicator of important/noted boating reaches; rivers designated by the State as Recreation Rivers were largely given this designation because of their boating opportunities.
 - The State Species of Special Concern criterion was expanded to include sensitive species at both State and Federal levels (i.e. State Species of Concern and Federal ESA Candidates).
 - No State Conservation Priority designation was found to exist; so this criterion was eliminated.

None of these changes made a significant difference in the outcome or validity of our results. Corresponding adjustments in application of SWG relative importance weights were straightforward.

- Use of SWG relative importance input: All SWG RI input was used to arrive at a consolidated, averaged set of scores to be used in the constraints analysis (a sheet showing these averages was distributed to all meeting attendees). As noted earlier, since SWG input was so evenly distributed in terms of prioritizing socioeconomic vs. environmental concerns, these averages provide a solid basis in seeking a shortlist of options that considers all points of view. In fact, the constraints analysis results/shortlist shown here today is based on these averages.

Nonetheless, it is always valuable to explore how shortlist results vary if [1] the outer extremes of criteria importance are used (i.e. high bias in favor of one or the other categories of concern), and [2] no relative importance values are used at all (i.e. just raw constraint scores). Both of these perspectives were explored.

In the first regard, analyses were conducted using the most two most “biased” sets of RI input, one in which the socioeconomic category was assigned 95 out of 100 RI points and one in which the environmental category received 75 out of 100. The shortlists of both runs showed significant commonality with each other and with the results of using the averages. Sites/options that appeared on only one of the biased views tended to be eliminated in the “average” run due to potentially significant constraints essentially ignored in the biased view.

Also significant was that analysis based simply on raw scores showed nearly identical results to relative importance analysis using averages.

Together, these findings reveal that there are several potential reservoir sites that rise to the top of the list (i.e. are much less constrained) regardless of whether one believes socioeconomic concerns should receive highest priority or the reverse. Certainly, this is not always the case in site selection processes of this type, and such results strongly validate the emerging shortlist.

SWG questions on the above centered on exactly how the average RI scores were calculated. Sherrill and Jenny K. provided explanation. It was also agreed that a clear explanation of the method would be included in the Assessment report.

Sherrill then presented a table and map showing the candidate sites comprising the top 10% of constraints analysis scores (see powerpoint show—note that the table shown inadvertently left off two sites: Upper Shafer and Wash Creeks). Key characteristics of this list included: [1] With one exception (i.e. Paddock Valley—a small expansion of an existing reservoir) all sites are off-stream, [2] Most sites are in the

Payette Basin, and of those in the Boise Basin, several would receive water via a basin transfer from the Payette river, not the Boise river, and [3] the sites in the Payette Basin are geographically distributed throughout its major tributaries.

Influence of geographic and land ownership considerations: Sherrill proceeded to describe the additional factors and concerns that must be considered, in combination with the hydrologic and constraints analyses, to arrive at a final shortlist of opportunities for inclusion in the Assessment report.

Primary among these is the fact that some needs in the Boise Basin, particularly additional flood control storage, cannot be met by sites in the Payette. Since it is a goal of this study to present an array of options capable of addressing the full spectrum of needs in both basins, the best (least constrained) sites in the Boise (and related directly to the Boise River or its major tributaries) were identified. Thus, the final list presented today includes the top rated sites in both basins.

Regarding land ownership, we have not either eliminated or selected shortlist sites based on this factor. We have, however, confirmed that a range of conditions is represented in the results, from all public to all private land. Ownership status will certainly play a significant role in more detailed studies of site feasibility.

Agenda Item 3: Proposed Final Shortlist of Storage Opportunities

Sherrill then began discussion of the planning team's proposed final shortlist of storage options. She focused on the map distributed to all participants. In order to clarify what the map shows, she explained the concept of "areas of opportunity". Essentially, this concept has emerged because there is often more than one potentially feasible/beneficial site in a given area, capable of achieving the same or similar objectives, with similar hydrologic conditions and similar constraint scores. Our general level of analysis makes it infeasible and inappropriate to select one of these and call it the best. Illustrative examples include:

- In the southern Boise Basin, Indian Creek-Mayfield and Krall Mountain both achieved relatively high scores in the constraints analysis. Both are off-stream sites that would get their water from the South Fork of the Boise River. Further study (e.g. more detailed analysis of constraints, relative benefits, costs, etc.) will be necessary to determine which of these sites is more desirable and where along the river to site the diversion. Therefore the "area of opportunity" in this case is defined as including [1] the stretch of the South Fork Boise River from which water for these facilities could be diverted, and [2] the two reservoir opportunity sites.
- In the Middle Fork/North Fork Boise River area, there are four potential reservoir sites identified within an area of opportunity. One site is Rabbit Creek, an off-stream site that rated high in the constraints analysis. The other three, Barber Flats, Alexander Flats, and Twin Springs, are on-stream sites that evidence increasingly high constraint levels in the downstream direction. The more constrained, on-stream sites are included in this area of opportunity because they may be important in meeting the need for additional flood control storage. This is particularly true of Twin Springs, which is the only one of the four that could capture flood flows from both the North Fork and the Middle Fork of the Boise.

The above examples cover the two areas of opportunity located entirely within the Boise Basin. Four other areas of opportunity are shown on the map, all of which take advantage of water from the Payette Basin. All four are similar in concept to the Indian Creek-Mayfield/Krall Mountain/South Fork Boise opportunity described above--they are defined as a set of alternative off-stream reservoir sites storing water diverted from a defined stretch of river. One opportunity would divert water from the North Fork

Payette, one would divert water from the South Fork Payette, and two would divert from the main stem Payette below the North/South Fork confluence, either in the Horseshoe Bend area or downstream from Emmett. In each case, there are alternative off-stream reservoir sites for storage of the diverted water. Most of these reservoir sites are within the Payette Basin. However, there are potential candidate sites in the Boise Basin that would require pumping/conveyance over the watershed divide.

In beginning discussion of these results, it was noted that most of the options in each Basin are mutually exclusive in terms of water stored for consumptive use. As discussed earlier, at 90% reliability, roughly 300,000 acre feet of water is available annually in the Payette, and 50,000 acre feet is available in the Boise. Most of the reservoir siting options listed in the areas of opportunity for each basin could store all of this available water. Many factors will need to be considered in future studies to determine which area(s) of opportunity might prove most beneficial and cost-effective.

The map showed areas of opportunity only as the involved river stretch and did not identify which reservoir sites correspond with each “opportunity” stretch. Future versions of the “shortlist” mapping will correct this situation.

Ensuuing SWG discussion of the proposed shortlist centered on the following points:

- Continuing concern was expressed that the constraints analysis exerted too strong an influence on the short-listing of potential reservoir sites, particularly in the absence of a correspondingly detailed look at the potential benefits of each site. Some SWG members fear that potential sites offering strong, over-riding benefits could be eliminated because of seemingly high constraint levels. A related concern is that our identification of a shortlist will unduly be construed to mean that sites on the shortlist are the only ones worth considering (when, in fact, if we “lowered the bar” slightly or used different assumptions, additional sites/options would still be “in the running.” The planning team responded to this concern with the following observations:
 - The assessment effort has in fact considered potential benefits at a broad level. Throughout the early phases of the study, we focused on defining the types (or tiers) of water demand and the major types of benefits that would motivate development of additional storage. As discussed at previous meetings, these demands/benefits include growth in consumptive demand (DCMI, agriculture), flood control, and what we have termed “discretionary” (including such benefits as increased reliability and flexibility in achieving flow augmentation targets, increased minimum flows, and others). We have also noted that secondary benefits such as hydropower may very well accompany new storage. However, detailed analysis of potential benefits at each candidate site (from a starting list of over 200 sites) has not been possible or appropriate. We understand the major benefits/needs that additional storage can address. However, we do not have a defined “project” with partners pursuing specific objectives. This Assessment is intended only to identify an array of options capable of meeting any or all identified tiers of demand/benefit. A primary tool for getting from 200 candidate sites down to a shortlist of potentially feasible options has been the constraints analysis.
 - We have noted from the beginning of the study that the socioeconomic and environmental constraints analysis is only a tool, not a firm and immutable filter. Other factors, including especially [1] hydrologic analysis, [2] the stated goal of addressing all tiers of need/benefit, and [3] professional judgment of SWG or planning team members, have been used in conjunction with the constraints analysis to arrive at our proposed shortlist. A primary example of this is the retention of the three on-stream options in the Middle/North Fork Boise River area. Another example is the continuing discussion of dredging at Cascade to gain additional storage space.

- Our intent in producing the Assessment report is to make the analysis process, data, and assumptions/judgments fully transparent so that, as/if more detailed studies are undertaken, new perspectives can be explored based on more defined needs/benefits/objectives or new data. We are confident that the process we have followed is credible in helping to eliminate clearly infeasible options and identify those that appear most attractive based on existing information. Our identification of “areas of opportunity” for further study (rather than specific sites) is an appropriate end point, using the hydrologic, constraint, and needs/benefits data to maximum advantage while not reaching beyond the credible limits of these data.
- SWG members observed that we need to look at combinations of sites or options in seeking the most attractive and feasible approach to developing new storage. For example, [1] if more flows for flow augmentation were released from a new facility in the Payette, that would free up additional space in existing Boise facilities so that a new on-stream flood control facility in the Boise might not be needed, or [2] what about the possibility of using the Twin Springs site on the Boise river as a low dam site for diverting the excess flows into an off stream facility?

In discussing this point, it was agreed that myriad combinations exist based on differing combinations of project objectives. Only when specific project proponents/partners come forward, with specific objectives, can the most appropriate and feasible options or combinations of options be further defined. This reinforces the need for flexibility in interpreting the results of this Assessment and transparency in how the Assessment’s conclusions were developed. The Assessment report will serve as a starting point for further study.

- Some of potential reservoir sites on the proposed shortlist (e.g. Dry Creek) were viewed as located too far down in the watershed to do much good, except perhaps for flow augmentation. The planning team agreed that this might be the case, that some the sites may only make sense in an exchange scenario. Nevertheless, we believe it to be important to identify the least constrained sites as part of Assessment results.
- SWG members asked why we weren’t seeing more attention to the retrofitting of existing reservoirs. The planning team responded that the majority of such options were both [1] limited in potential storage volume gained, and [2] highly constrained by such factors as roads, recreation sites, and other development. The exception is Paddock Valley, which shows few constraints but is still small in volume yield.
- Some SWG members were concerned about the off-stream scenarios in terms of “dewatering” impacts in the source river. The team responded that this aspect was not analyzed beyond the provision in MODSIM runs that existing minimum flows not be violated.

Agenda Item 4: Assessment Report Outline

As discussion of the proposed shortlist reached its conclusion, Sherrill focused the group’s attention on a draft outline of the Assessment report. She noted that the next steps in the process would be to make adjustments/refinements in the shortlist based on input from this meeting and then prepare a full draft of the Assessment report. The draft report will be the subject of the next and final SWG meeting. Sherrill asked the group for any initial observations/comments on the outline and requested that SWG members take some time in the next few days to look at both the shortlist results presented at this meeting and the draft outline in greater detail. She asked that comments in either or both regards be submitted to Reclamation within one week.

One initial observation on the outline suggested that it appeared to portray the process as linear, starting with hydrologic analysis, moving through constraints screening, to adjustments based on factors like need

fulfillment. This presentation would seem to contradict the assertion that the three tracks of [1] needs/benefits, [2] hydrology/available water, and [3] constraints analysis were used interactively in defining study conclusions. It was agreed that the report would be structured to communicate that a parallel and interactive process was used vs. a linear process. This presentation would more accurately portray the flow of work and the interaction among factors in arriving at conclusions/findings.

Agenda Item 5: Next Steps

As noted above, Sherrill requested that any SWG comments on the “Areas of Opportunity” presented at this meeting or on the draft report outline be submitted to John Tiedeman within one week.

The goal will be to get the draft Assessment Report out for SWG review by February 27. We will then have the final SWG meeting on March 14 to receive comments and suggestions on the draft report.

IV. Next Meeting

The March 14 meeting will be at the same time (9:30 to Noon) and the same location as today’s meeting.

Appendix C

Regional Conservation Analysis

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APPENDIX C

Regional Conservation Analysis

As discussed in the assessment report, neither of the existing DCM&I demand projections (IDWR, 2001; IDWR, 1999) incorporated any benefits related to increased conservation. At the request of stakeholders, estimated benefits from conservation were incorporated into the assessment.

For the Boise River system, although the need for watershed-wide DCM&I conservation effort was identified during the Treasure Valley Water Summit in 2002 (COMPASS, 2002), no such planning is currently being conducted. Because large-scale conservation programs typically take a number of years to be developed and effectively implemented, future demands were not adjusted for conservation until 2015. At that point, a 0.6 percent annual reduction to total DCM&I demands was applied, with the effectiveness of conservation decreasing to 0.4 percent per year by 2050. For the Payette River Basin, where water suppliers and private wells are much more decentralized, given the primarily rural population, a 0.4 percent annual conservation target was applied between 2015 and 2050.

These ranges of conservation estimates were based on conservation programs in similar areas as follows:

- Nevada. Localized conservation programs implemented in the 1990s resulted in conservation savings of between 0.6 percent and 1.3 percent on a per capita basis (Nevada Division of Water Resources, 1999). On a larger geographic scale, statewide municipal and industrial water use decreased at an annual rate of 1.2 percent on a per capita basis. Future regional conservation efforts over a 25-year planning period are targeting overall water withdrawal reductions of 15 percent (Nevada Division of Water Resources, 1999). This estimate builds on existing conservation programs and translates to an overall annual conservation goal of 0.6 percent.
- Utah. On a statewide basis, the Division of Water Resources has set a municipal and industrial (M&I) per capita water conservation goal of 12.5 percent for public water supplies by 2025 (0.5 percent/year) and 25 percent by 2050 (Utah Natural Resources, 2001). This estimate is based on plans developed by large conservancy districts and water retailers (which cover more than 90 percent of the State's population) in response to the 1998-1999 State Water Conservation Plan Act.
- Albuquerque, New Mexico. Between 1995 and 2004, an overall (and per capita) reduction in water demands of 30 percent (3.8 percent/year) was achieved based on an aggressive conservation plan. Subsequent planning periods are targeting an additional 10 percent overall reduction.

It is important to note that currently there is no Federal, State, local agency, or interested party that is conducting conservation planning in either basin. More effective conservation might occur as better conservation programs are developed over a 50-year planning horizon.

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Appendix D

Literature Review Report

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APPENDIX D

Literature Review Report

can be downloaded at:

http://www.usbr.gov/pn/programs/srao_misc/bp_storagestudy/

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Appendix D

Literature Review Report

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RECLAMATION

Managing Water in the West

FINAL

Boise and Payette River Basins: Literature Report for Potential Water Storage Opportunities

Prepared for
Bureau of Reclamation

November 2, 2005

CH2MHILL

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Acronyms and Abbreviations

USACE	U.S. Army Corps of Engineers
AF	acre-feet
BOR	U.S. Bureau of Reclamation
DCMI	Domestic, Commercial, Municipal, and Industrial
Ft	Feet
IDWR	Idaho Department of Water Resources
NWPPC	Northwest Power Planning Council
Reclamation	Bureau of Reclamation
SCS	Soil Conservation Service
USFS	U.S. Forest Service
USGS	U.S. Geologic Society

I. Summary of Literature Review

1. Literature Report

1.1 Introduction

This literature report has been prepared for the Bureau of Reclamation (Reclamation) to document available information regarding potential water storage opportunities within the Boise River and Payette River Basins in Southeastern Idaho. Both basins have been well studied since the 1940s and more than 200 documents have been published regarding local water supplies.

Available literature on potential water storage sites was reviewed and is summarized within this report. No filtering of information or judgment of conclusions has occurred, in order to provide a “pure” summary of what has been published previously.

Some sites have been more extensively studied (in numerous documents), while others represent only a dot on a map with no supporting information or justification. Because the objective of this project task is to coalesce existing information, if information is not included for a specific site (for example, potential storage capacity), then the reader can assume that this information was not available.

1.2 Organization

Existing information has been summarized in a number of different formats to facilitate the varied uses of the information. Section I contains a condensed report of potential on-stream, off-stream, existing, and unclassified facilities in the Boise River and Payette River Basins. A detailed bibliography, included in Section III, provides an evaluation of the quality and quantity of information contained in each document. A hardcopy of a summary electronic database is included in Section IV, while Section V references where copies of relevant information can be viewed.

1.3 Identification of Key Data Gaps

As mentioned previously, the quality of information for each potential storage site varies widely. In most cases, the underlying assumptions regarding potential storage capacity and hydrology are not provided. Because information on drainage area and hydrology (annual runoff) is inconsistent, the summary report does not present that information (although available data are captured in the database where available). This information is being addressed in much greater detail in subsequent phases of this project using the U.S. Geological Survey (USGS) StreamStat program to provide accuracy and consistency between sites. Very few of the documents reference or incorporate water right limitations for specific sites.

In addition, costs shown in the literature report summary are (in most cases) many years old and are generally not supported by detailed analysis. Where detailed cost information is

available, current cost indexing would need to be performed during subsequent phases of work. Where no cost information is available, current cost information would need to be developed during subsequent phases of work.

2. Boise River Basin

This chapter provides a summary of potential on-stream and off-stream storage sites in the Boise River Basin (see basin map in Section II for location of each site). Existing facilities are also listed and summarized. Those facilities that were not identified as either on-stream, off-stream, or existing are considered “unclassified.”

2.1 Potential On-stream Storage Sites (Boise)

Alexander Flats

Boise River Basin	Township: 05N County: ELMORE
Subbasin: NORTH AND MIDDLE FORK BOISE	Range: 07E Quad.: SHEEP CREEK
Type: On-stream	HUC: 17050111
Water Source(s)	Middle Fork Boise River
Reservoir Cap. (AF)	50,000 [1], 15,000 [2], 50,000 [12], 15,000 [20]
Documentation	Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12], United States Geological Survey, 1965 [20]
Estimated Cost	
Reason(s) Not Constructed	Twin Springs site preferred [12]
Summary	Dam would be 700-ft long for 15,000 AF capacity and 600-ft long for 50,000 AF capacity.

Bald Mountain

Boise River Basin	Township: 06N County: ELMORE
Subbasin: NORTH AND MIDDLE FORK BOISE	Range: 10E Quad.: ATLANTA WEST
Type: On-stream	HUC: 17050111
Water Source(s)	Middle Fork Boise River
Reservoir Cap. (AF)	
Documentation	Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20]
Estimated Cost	
Reason(s) Not Constructed	
Summary	Low-head (400-ft) dam with pipeline to powerhouse.

Barber Flats

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: On-stream

Township: 05N County: ELMORE
Range: 08E Quad.: BARBER FLAT
HUC: 17050111

Water Source(s) North Fork Boise River
Reservoir Cap. (AF) 76,000 [1], 76,000 [12]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12], Water Resources Research Institute, 1970 [21], United States Geological Survey, 1965 [20]
Estimated Cost
Reason(s) Not Constructed Twin Springs site preferred [12]
Summary Near Twin Springs predicted backwater limits, head of 500 ft (220 ft from a new dam and 280 ft from conduit to powerhouse).

Bascum Flats (aka: Bascum Ranch)

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: On-stream

Township: 03N County: ELMORE
Range: 11E Quad.: GROUSE BUTTE
HUC: 17050113

Water Source(s) South Fork Boise River
Reservoir Cap. (AF) 90,000 [1], 122,000 [12]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12], United States Geological Survey, 1965 [20]
Estimated Cost
Reason(s) Not Constructed Anderson Ranch Regulates Runoff [12]
Summary Dam (200-ft-high) near canyon downstream of Willow Creek.

Beaver Creek

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: On-stream

Township: 03N County: CAMAS
Range: 12E Quad.: JUMBO MOUNTAIN
HUC: 17050113

Water Source(s) South Fork Boise River
Reservoir Cap. (AF)
Documentation Bureau of Reclamation, 1961 [12]
Estimated Cost
Reason(s) Not Constructed Anderson Ranch Regulates Runoff [12]
Summary Run-of-river power development.

Big Smoky (aka: Bascombe Ranch) (aka: Upper Big Smoky)

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: On-stream

Township: 03N County: CAMAS
Range: 13E Quad.: BOARDMAN CREEK
HUC: 17050113

Water Source(s) South Fork Boise River
Reservoir Cap. (AF) 125,000 [1], 258,000 [12], 171,000 [21]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1955 [11], Bureau of Reclamation, 1961 [12], Water Resources Research Institute, 1970 [21], United States Geological Survey, 1965 [20]
Estimated Cost,
Reason(s) Not Constructed Anderson Ranch Regulates Runoff [12]
Summary Low-head dam with conduit (270-ft of gravity head) to powerhouse.

Blacks Creek

Boise River Basin
Subbasin: LOWER BOISE
Type: On-stream

Township: 02N County: ADA
Range: 02E Quad.: OWYHEE
HUC: 17050114

Water Source(s) Tenmile Creek
Reservoir Cap. (AF) 19,000 [12]
Documentation Bureau of Reclamation, 1961 [12]
Estimated Cost
Reason(s) Not Constructed Runoff inadequate [12]
Summary No description available.

Boise-Rochester

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: On-stream

Township: 06N County: ELMORE
Range: 011E Quad.: ATLANTA
HUC: 17050111

Water Source(s) Middle Fork Boise River
Reservoir Cap. (AF)
Documentation Bureau of Reclamation, 1961 [12]
Estimated Cost
Reason(s) Not Constructed Twin Springs site preferred [12]
Summary Run-of-river powerhead development.

Casey Ranch (aka: Dog Creek)

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: On-stream

Township: 02N County: ELMORE
Range: 10E Quad.: FEATHERVILLE
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF) 270,000 [1], 64,000 [12], 369,000 [21]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Bureau of Reclamation, 1961 [12], Water Resources Research Institute, 1970 [21], Idaho Water Resources Research Institute, 1981 [26], United States Geological Survey, 1965 [20]

Estimated Cost

Reason(s) Not Constructed Anderson Ranch Regulates Runoff [12]

Summary Dam (280-ft high) at mile 61.7, with additional 102-ft head pipeline to powerhouse at Anderson Ranch backwater.

Deer Park

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: On-stream

Township: 07N County: BOISE
Range: 09E Quad.: BEAR RIVER
HUC: 17050111

Water Source(s) North Fork Boise River

Reservoir Cap. (AF)

Documentation Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Twin Springs site preferred [12]

Summary Diversion dam and conduit for 330-ft powerhead development.

Dog Creek

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: On-stream

Township: 02N County: ELMORE
Range: 10E Quad.: FEATHERVILLE
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF) 165,000 [1], 165,000 [12]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Bureau of Reclamation, 1955 [11], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Anderson Ranch Regulates Runoff [12]

Summary No description available.

Dutch Frank Hot Springs

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: On-stream

Township: 05N County: ELMORE
Range: 09E Quad.: GRAND MOUNTAIN
HUC: 17050111

Water Source(s) Middle Fork Boise River
Reservoir Cap. (AF)
Documentation Bureau of Reclamation, 1961 [12]
Estimated Cost
Reason(s) Not Constructed Twin Springs site preferred [12]
Summary Run-of-river powerhead development.

Featherville

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: On-stream

Township: 03N County: ELMORE
Range: 10E Quad.: GROUSE BUTTE
HUC: 17050113

Water Source(s) South Fork Boise River
Reservoir Cap. (AF) 34,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], Water Resources Research Institute, 1970 [21], United States Geological Survey, 1965 [20]
Estimated Cost
Reason(s) Not Constructed
Summary Narrow canyon at mile 70.8 limits capacity of reservoir with 150-ft head dam.

Graham

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: On-stream

Township: 08N County: BOISE
Range: 10E Quad.: SWANHOLM PEAK
HUC: 17050111

Water Source(s) North Fork Boise River
Reservoir Cap. (AF) 44,000 [1], 44,000 [12], 44,000 [20], 84,700 [21]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12], United States Geological Survey, 1965 [20], Water Resources Research Institute, 1970 [21]
Estimated Cost
Reason(s) Not Constructed Twin Springs site preferred [12]
Summary Low-head dam (1,100 ft long and 250 ft high).

Indian Point

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: On-stream

Township: 01S County: ELMORE
Range: 08E Quad.: LONG TOM RESERVOIR
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF) 20,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1955 [11], United States Geological Survey, 1965 [20]

Estimated Cost

Reason(s) Not Constructed

Summary Low-head dam (98-ft high with 500-ft crest length) that would raise water to Anderson Ranch tailrace. Second option includes diversion tunnel for Long Tom project to Mountain Home that would carry 1,900 cfs.

King (aka: Boise King Powersite) (aka: Boise King Power Project Nos. 1 and 2)

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: On-stream

Township: 05N County: ELMORE
Range: 09E Quad.: BARBER FLAT
HUC: 17050111

Water Source(s) Middle Fork Boise River

Reservoir Cap. (AF) 56,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Water Resources Research Institute, 1970 [21], United States Geological Survey, 1965 [20], Idaho Water Resources Research Institute, 1980 [5]

Estimated Cost

Reason(s) Not Constructed Twin Springs site preferred [12]

Summary Run-of-river low-head (220-ft) dam for power generation.

Lake Creek

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: On-stream

Township: 06N County: ELMORE
Range: 010E Quad.: PFIFER CREEK
HUC: 17050111

Water Source(s) Middle Fork Boise River
Reservoir Cap. (AF)
Documentation Bureau of Reclamation, 1961 [12]
Estimated Cost
Reason(s) Not Constructed Twin Springs site preferred [12]
Summary Run-of-river powerhead development.

Little Smoky

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: On-stream

Township: 03N County: CAMAS
Range: 14E Quad.: SYDNEY BUTTE
HUC: 17050113

Water Source(s) Little Smoky Creek, South Fork Boise River
Reservoir Cap. (AF) 12,000 [1], 12,000 [12]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12], Water Resources Research Institute, 1970 [21]
Estimated Cost
Reason(s) Not Constructed Anderson Ranch Regulates Runoff [12]
Summary Proposed as a combined dam and conduit for Big Smoky via a 4.5-mile tunnel.

Long Gulch (aka: Big Fiddler)

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: On-stream

Township: 03N County: ELMORE
Range: 06E Quad.: LONG GULCH
HUC: 17050113

Water Source(s) South Fork Boise River
Reservoir Cap. (AF) 27,000 [5]
Documentation Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20], Water Resources Research Institute, 1970 [21], U.S. Army Corps of Engineers, 1976 [24]
Estimated Cost
Reason(s) Not Constructed
Summary Dam (259-ft of head) at Arrowrock backwater limit.

Lost Creek

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: On-stream

Township: 06N County: ELMORE
Range: 08E Quad.: BARBER FLAT
HUC: 17050111

Water Source(s) North Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], Water Resources Research Institute 1970 [21], United States Geological Survey, 1965 [20]

Estimated Cost

Reason(s) Not Constructed

Summary Low-head (135 ft high and 500 ft long) dam or 2.8-mile-long diversion to Big Owl tailrace.

Monarch

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: On-stream

Township: 06N County: ELMORE
Range: 010E Quad.: PFIFER CREEK
HUC: 17050111

Water Source(s) Middle Fork Boise River

Reservoir Cap. (AF)

Documentation Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Twin Springs site preferred [12]

Summary Run-of-river powerhead development.

Raspberry (aka: Raspberry Joy)

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: On-stream

Township: 02N County: ELMORE
Range: 07E Quad.: DANSKIN PEAK
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF) 160,000 [1], 145,000 [12], 180,000 [21]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12], United States Geological Survey, 1965 [20], Water Resources Research Institute, 1970 [21]

Estimated Cost

Reason(s) Not Constructed Anderson Ranch Regulates Runoff [12]

Summary Low-head (295 to 300 ft head) damsite in narrow canyon, with dam crest length of >800 ft.

Slide Gulch

Boise River Basin
Subbasin: BOISE-MORES
Type: On-stream

Township: 04N County: BOISE
Range: 06E Quad.: TWIN SPRINGS
HUC: 17050112

Water Source(s) Boise River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], Idaho National Engineering and Environmental Laboratory, 1998 [17], United States Geological Survey, 1965 [20], Water Resources Research Institute, 1970 [21]

Estimated Cost

Reason(s) Not Constructed

Summary Dam with 2-mile gravity tunnel to powerhouse at Arrowrock backwater limits. Head of 181 ft.

South Fork Boise River

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: On-stream

Township: 01N County: ELMORE
Range: 07E Quad.: CATHEDRAL ROCKS
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF) 113,000 [1], 113,000 [12]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Anderson Ranch Regulates Runoff [12]

Summary No description available.

Swanholm Creek

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: On-stream

Township: 05N County: ELMORE
Range: 09E Quad.: GRAND MOUNTAIN
HUC: 17050111

Water Source(s) Middle Fork Boise River

Reservoir Cap. (AF)

Documentation Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Twin Springs site preferred [12]

Summary Run-of-river powerhead development.

Tin Cup Creek (aka: Upper 12HD 15)

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: On-stream

Township: 05N County: ELMORE
Range: 07E Quad.: BARBER FLAT
HUC: 17050111

Water Source(s) North Fork Boise River
Reservoir Cap. (AF) 152,000 [1]
Documentation Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12], Water Resources Research Institute, 1970 [21]
Estimated Cost
Reason(s) Not Constructed Twin Springs site preferred [12]
Summary Proposed as a diversion dam (180 ft powerhead) development.

Twin Springs

Boise River Basin
Subbasin: BOISE-MORES
Type: On-stream

Township: 04N County: ELMORE
Range: 07E Quad.: TWIN SPRINGS
HUC: 17050112

Water Source(s) Middle Fork Boise River
Reservoir Cap. (AF) 490,000 [1], 410,000 [7], 170,000 [10], 410,000 [12], 410,000 [20]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1980 [5], Idaho Water Resource Board, 1992 [6], Idaho Water Resource Board, 1996 [7], Bureau of Reclamation, 1938 [9], Bureau of Reclamation, 1940 [10], Bureau of Reclamation, 1955 [11], Bureau of Reclamation, 1961 [12], Idaho National Engineering and Environmental Laboratory, 1998 [17], United States Geological Survey, 1965 [20], Water Resources Research Institute, 1970 [21]
Estimated Cost \$30,258,000 [3]
Reason(s) Not Constructed Not economically feasible [1], compared to enlarging existing facilities.
Summary The reservoir basin occupies the gorge of the Middle Fork Boise River for a distance of 10 miles above the damsite and also extends up the North Fork Boise River for a distance of 5 miles. The capacity of 170,000 AF was selected as best meeting the uses for irrigation, flood control, and power development. Dam estimated to be 415 ft high with a total length of 1,700 ft (including spillway).

Worewick

Boise River Basin		Township: 03N	County: CAMAS
Subbasin: SOUTH FORK BOISE		Range: 14E	Quad.: SYDNEY BUTTE
Type: On-stream		HUC: 17050113	
Water Source(s)	Little Smoky Creek		
Reservoir Cap. (AF)	12,000 [1], 12,000 [12]		
Documentation	Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Bureau of Reclamation, 1961 [12], Water Resources Research Institute, 1970 [21]		
Estimated Cost			
Reason(s) Not Constructed	Anderson Ranch Regulates Runoff [12]		
Summary	No description available.		

Yuba

Boise River Basin		Township: 05N	County: ELMORE
Subbasin: NORTH AND MIDDLE FORK BOISE		Range: 11E	Quad.: ATLANTA WEST
Type: On-stream		HUC: 17050111	
Water Source(s)	Middle Fork Boise River		
Reservoir Cap. (AF)	90,000 [1]		
Documentation	Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20]		
Estimated Cost			
Reason(s) Not Constructed	Twin Springs site preferred [12]		
Summary	Proposed low-head (200-ft-high) dam for hydropower with 4-mile gravity pipeline to powerhouse.		

2.2 Potential Off-stream Storage Sites (Boise)

Archie Mountain

Boise River Basin		Township: 08N	County: BOISE
Subbasin: NORTH AND MIDDLE FORK BOISE		Range: 08E	Quad.: JACKSON PEAK
Type: Off-stream		HUC: 17050111	
Water Source(s)	South Fork Payette River		
Reservoir Cap. (AF)	49,000 [1]		
Documentation	Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Bureau of Reclamation, 1961 [12]		
Estimated Cost			
Reason(s) Not Constructed	High unit costs [12]		
Summary	No description available.		

Bear Creek

Boise River Basin		Township: 03N	County: CAMAS
Subbasin: SOUTH FORK BOISE		Range: 13E	Quad.: BOARDMAN CREEK
Type: Off-stream		HUC: 17050113	
Water Source(s)	Salmon River		
Reservoir Cap. (AF)	400,000 [12]		
Documentation	Bureau of Reclamation, 1961 [12]		
Estimated Cost			
Reason(s) Not Constructed	Anderson Ranch Regulates Runoff [12]		
Summary	No description available.		

Bear River

Boise River Basin		Township: 06N	County: ELMORE
Subbasin: NORTH AND MIDDLE FORK BOISE		Range: 10E	Quad.: NAHNEKE MOUNTAIN
Type: Off-stream		HUC: 17050111	
Water Source(s)	North Fork Boise River, Crooked Rivers		
Reservoir Cap. (AF)	93,000 [1], 95,000 [4]		
Documentation	Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1979 [4]		
Estimated Cost			
Reason(s) Not Constructed	Anderson Ranch Regulates Runoff [12]		
Summary	Diversion from Salmon River.		

Big Gulch

Boise River Basin
Subbasin: LOWER BOISE
Type: Off-stream

Township: 05N County: ADA
Range: 01E Quad.: EAGLE
HUC: 17050114

Water Source(s) Boise River

Reservoir Cap. (AF) 36,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1979 [4]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Big Owl

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Off-stream

Township: 07N County: ELMORE
Range: 09E Quad.: BEAR RIVER
HUC: 17050111

Water Source(s) North Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20]

Estimated Cost

Reason(s) Not Constructed

Summary Divert water from mouth of Trail Creek over 6.5 miles (414 ft of head change) to powerhouse.

Blacks Creek Road

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: 02N County: ELMORE
Range: 05E Quad.: GRAPE MOUNTAIN
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF) 44,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Runoff inadequate [12]

Summary No description available.

Boardman Creek

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: 03N County: CAMAS
Range: 13E Quad.: BOARDMAN CREEK
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

Reason(s) Not Constructed

Summary Divert water from Big Smoky tailrace and carry 7 miles to powerhouse down 400-ft in elevation.

Cat Creek

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: 01S County: ELMORE
Range: 09E Quad.: ANDERSON RANCH DAM
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF) 93,000 [1], 95,000 [4]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1979 [4]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Chadre

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: County:
Range: Quad.:
HUC:

Water Source(s) Payette River

Reservoir Cap. (AF) 24,000 [3]

Documentation U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Conswello

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: County:
Range: Quad.:
HUC:

Water Source(s) Payette River

Reservoir Cap. (AF) 56,000 [3]

Documentation U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Coyote Butte

Boise River Basin
Subbasin: LOWER BOISE
Type: Off-stream

Township: 02S County: ADA
Range: 03E Quad.: ORCHARD
HUC: 17050114

Water Source(s) Mora Canal
Reservoir Cap. (AF) 260,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary Pump lift from Mora Canal, transport via 6.5-mile pipeline to reservoir, and release to Swan Falls powerhouse via 3.5-mile pipeline (powerhouse within Birds of Prey National Area).

Crooked River East

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Off-stream

Township: 07N County: BOISE
Range: 07E Quad.: BIG OWL CREEK
HUC: 17050111

Water Source(s) South Fork Payette River
Reservoir Cap. (AF) 37,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Crooked River West

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Off-stream

Township: 07N County: BOISE
Range: 07E Quad.: BIG OWL CREEK
HUC: 17050111

Water Source(s) North Fork Boise River, South Fork Payette River
Reservoir Cap. (AF) 119,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Dixie Creek

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: 01S County: ELMORE
Range: 08E Quad.: ANDERSON RANCH DAM
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF) 46,000 [1], 47,000 [4]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1979 [4]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Dry Creek

Boise River Basin
Subbasin: LOWER BOISE
Type: Off-stream

Township: 04N County: ADA
Range: 02E Quad.: BOISE NORTH
HUC: 17050114

Water Source(s) Boise River, Payette River

Reservoir Cap. (AF) 53,000 [1], 54,000 [4], 220,000 [12]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1979 [4], Bureau of Reclamation, 1955 [11], Bureau of Reclamation, 1961 [12], Water Resources Research Institute, 1970 [21]

Estimated Cost

Reason(s) Not Constructed

Summary The site would likely be included in the Payette River–Garden Valley Complex. Without Payette River supplementation, the facility does not have sufficient runoff.

Dunnigan Creek

Boise River Basin
Subbasin: BOISE-MORES
Type: Off-stream

Township: 04N County: BOISE
Range: 04E Quad.: DUNNIGAN CREEK
HUC: 17050112

Water Source(s) South Fork Payette River, Mores Creek

Reservoir Cap. (AF) 240,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary This site would require a canal diversion from Mores Creek and would use on-stream flows in Grimes Creek. There is also the option of a very high-head pumped storage interchange with the South Fork of the Payette River. A brief economic costs appraisal indicates only a fair economic possibility.

Elk Creek

Boise River Basin
Subbasin: BOISE-MORES
Type: Off-stream

Township: 07N County: BOISE
Range: 06E Quad.: SUNSET MOUNTAIN
HUC: 17050112

Water Source(s) Mores Creek

Reservoir Cap. (AF) 41,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Firebird

Boise River Basin
Subbasin: LOWER BOISE
Type: Off-stream

Township: 05N County: ADA
Range: 01W Quad.: SOUTHEAST EMMETT
HUC: 17050114

Water Source(s) Payette River

Reservoir Cap. (AF) 67,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Granite Creek

Boise River Basin
Subbasin: BOISE-MORES
Type: Off-stream

Township: 07N County: BOISE
Range: 04E Quad.: PLACERVILLE
HUC: 17050112

Water Source(s) South Fork Payette River

Reservoir Cap. (AF) 48,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Grimes Creek

Boise River Basin
Subbasin: BOISE-MORES
Type: Off-stream

Township: 06N County: BOISE
Range: 04E Quad.: WARM SPRINGS POINT
HUC: 17050112

Water Source(s) South Fork Payette River, Grimes Creek

Reservoir Cap. (AF) 1,500,000 [3], 5,000 [21], 5,000 [12]

Documentation U.S. Army Corps of Engineers, 1981 [3], Water Resources Research Institute, 1970 [21], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Lucky Peak Regulation Runoff [12]

Summary Diversion from Payette, or small onsite facility for Grimes Creek.

Horseshoe Bend Road

Boise River Basin
Subbasin: LOWER BOISE
Type: Off-stream

Township: 05N County: ADA
Range: 01E Quad.: PEARL
HUC: 17050114

Water Source(s) Boise River
Reservoir Cap. (AF) 100,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Indian Creek-Mayfield

Boise River Basin
Subbasin: LOWER BOISE
Type: Off-stream

Township: 01N County: ELMORE
Range: 05E Quad.: MAYFIELD
HUC: 17050114

Water Source(s) South Fork Boise River
Reservoir Cap. (AF) 52,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Johnson Creek

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: 04N County: CAMAS
Range: 13E Quad.: NEWMAN PEAK
HUC: 17050113

Water Source(s) South Fork Boise River, Salmon River
Reservoir Cap. (AF) 180,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], United States Geological Survey, 1965 [20], Bureau of Reclamation, 1961 [12]
Estimated Cost
Reason(s) Not Constructed
Summary Divert Johnson Creek and Ross Fork drainages down a conveyance system down the South Fork Boise River to a power drop site near Skunk Creek. Gravity head of 900-ft to powerhouse at Big Smoky site. Alternative source would be diversion from Salmon River (otherwise runoff was thought to be inadequate for a run-of-river powerhead development).

Krall Mountain

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: 03N County: ELMORE
Range: 06E Quad.: LONG GULCH
HUC: 17050113

Water Source(s) South Fork Boise River
Reservoir Cap. (AF) 121,000 [3]
Documentation U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Lanktree Gulch

Boise River Basin
Subbasin: LOWER BOISE
Type: Off-stream

Township: 05N County: CANYON
Range: 02W Quad.: MIDDLETON
HUC: 17050114

Water Source(s) Boise River
Reservoir Cap. (AF) 22,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary Water would be diverted from the Boise River via the Farmers Union Canal.

Little Gulch

Boise River Basin
Subbasin: LOWER BOISE
Type: Off-stream

Township: 05N County: ADA
Range: 01E Quad.: SOUTHEAST EMMETT
HUC: 17050114

Water Source(s) Boise River
Reservoir Cap. (AF) 16,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Lime Creek

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: 01N County: ELMORE
Range: 11E Quad.: SPROUT MOUNTAIN
HUC: 17050113

Water Source(s) Lime Creek

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20]

Estimated Cost

Reason(s) Not Constructed Recommended specifically for protection as protected river.

Summary Diversion to Anderson Ranch backwater (5.0 miles).

Lower Crooked River

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: County:
Range: Quad.:
HUC:

Water Source(s) North Fork Boise River, South Fork Payette River

Reservoir Cap. (AF) 250,000 [3]

Documentation U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Lower Dry Creek

Boise River Basin
Subbasin: LOWER BOISE
Type: Off-stream

Township: 05N County: ADA
Range: 02E Quad.: EAGLE
HUC: 17050114

Water Source(s) Boise River

Reservoir Cap. (AF) 43,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Lower Feather River

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: 04N County: ELMORE
Range: 10E Quad.: CAYUSE POINT
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF) 24,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Lower Little Smoky Creek

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: 04N County: CAMAS
Range: 14E Quad.: PARADISE PEAK
HUC: 17050113

Water Source(s) Big Smoky Creek, South Fork Boise River

Reservoir Cap. (AF) 76,000 [3]

Documentation U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed Anderson Ranch Regulates Runoff [12]

Summary No description available.

Magello

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: County:
Range: Quad.:
HUC:

Water Source(s) Payette River

Reservoir Cap. (AF) 27,000 [3]

Documentation U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Meadow Creek

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Off-stream

Township: 05N County: BOISE
Range: 07E Quad.: RABBIT CREEK SUMMIT
HUC: 17050111

Water Source(s) Crooked Rivers, North Fork Boise River
Reservoir Cap. (AF) 44,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Middleton

Boise River Basin
Subbasin: LOWER BOISE
Type: Off-stream

Township: 05N County: CANYON
Range: 02W Quad.: MIDDLETON
HUC: 17050114

Water Source(s) Payette River
Reservoir Cap. (AF) 29,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Moore's Flat

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: 01N County: ELMORE
Range: 10E Quad.: PINE
HUC: 17050113

Water Source(s) South Fork Boise River
Reservoir Cap. (AF) 52,000 [1], 55,000 [4]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1979 [4]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Pioneerville

Boise River Basin
Subbasin: BOISE-MORES
Type: Off-stream

Township: 07N County: BOISE
Range: 05E Quad.: PIONEERVILLE
HUC: 17050112

Water Source(s) South Fork Payette River
Reservoir Cap. (AF) 58,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Placerville

Boise River Basin
Subbasin: BOISE-MORES
Type: Off-stream

Township: 07N County: BOISE
Range: 05E Quad.: PLACERVILLE
HUC: 17050112

Water Source(s) South Fork Payette River
Reservoir Cap. (AF) 21,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Rabbit Creek (aka: Lower 12HD 15)

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Off-stream

Township: 05N County: BOISE
Range: 07E Quad.: BARBER FLAT
HUC: 17050111

Water Source(s) North Fork Boise River, Crooked River
Reservoir Cap. (AF) 152,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12], Water Resources Research Institute, 1970 [21]
Estimated Cost
Reason(s) Not Constructed Twin Springs site preferred [12]
Summary Run-of-river powerhead development.

Sand Hollow Gulch (aka: Sand Hollow Creek)

Boise River Basin
Subbasin: LOWER BOISE
Type: Off-stream

Township: 05N County: CANYON
Range: 04W Quad.: PARMA SE
HUC: 17050114

Water Source(s) Payette River, Boise River

Reservoir Cap. (AF) 41,000 [1], 42,000 [4], 39,000 [12]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1979 [4], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Land in reservoir area developed under Boise-Payette project [12]

Summary No description available.

Sawmill

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: 02N County: ELMORE
Range: 09E Quad.: HOUSE MOUNTAIN
HUC: 17050113

Water Source(s) Fall Creek

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20]

Estimated Cost

Reason(s) Not Constructed

Summary Divert Fall Creek to Anderson Ranch backwater.

Sebree

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: County:
Range: Quad.:
HUC:

Water Source(s) Payette River, Boise River

Reservoir Cap. (AF) 30,000 [3]

Documentation U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Stuart Gulch

Boise River Basin
Subbasin: LOWER BOISE
Type: Off-stream

Township: 04N County: ADA
Range: 02E Quad.: BOISE NORTH
HUC: 17050114

Water Source(s) Boise River
Reservoir Cap. (AF) 37,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Trapper Flat

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Off-stream

Township: 08N County: BOISE
Range: 09E Quad.: JACKSON PEAK
HUC: 17050111

Water Source(s) South Fork Payette River
Reservoir Cap. (AF) 178,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Trinity Mountain

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: County:
Range: Quad.:
HUC:

Water Source(s) South Fork Boise River
Reservoir Cap. (AF) 104,000 [3]
Documentation U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Upper Crooked River

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Off-stream

Township: 06N County: BOISE
Range: 08E Quad.: BARBER FLAT
HUC: 17050111

Water Source(s) South Fork Payette River

Reservoir Cap. (AF) 49,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Upper Feather River

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: County:
Range: Quad.:
HUC:

Water Source(s) South Fork Boise River

Reservoir Cap. (AF) 70,000 [3]

Documentation U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Upper Little Smoky Creek

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: 03N County: CAMAS
Range: 14E Quad.: DOLLARHIDE MOUNTAIN
HUC:

Water Source(s) Big Smoky Creek, South Fork Boise River

Reservoir Cap. (AF) 87,000 [3]

Documentation U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Upper Willow Creek

Boise River Basin
Subbasin: LOWER BOISE
Type: Off-stream

Township: 06N County: GEM
Range: 01W Quad.: SOUTHEAST EMMETT
HUC: 17050114

Water Source(s) Payette River

Reservoir Cap. (AF) 31,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

West Hartley Gulch

Boise River Basin
Subbasin: LOWER BOISE
Type: Off-stream

Township: 06N County: GEM
Range: 03W Quad.: SAND HOLLOW
HUC: 17050114

Water Source(s) Boise River, Payette River

Reservoir Cap. (AF) 31,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Willow Creek

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: 03N County: ELMORE
Range: 05E Quad.: GRAPE MOUNTAIN
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF) 46,000 [4]

Documentation Idaho Water Resources Research Institute, 1979 [4]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Woods Gulch

Boise River Basin
Subbasin: LOWER BOISE
Type: Off-stream

Township: 05N County: ADA
Range: 01E Quad.: EAGLE
HUC: 17050114

Water Source(s) Boise River

Reservoir Cap. (AF) 26,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

2.3 Existing Storage Sites (Boise)

Anderson Ranch

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Existing

Township: 01S County: ELMORE
Range: 08E Quad.: ANDERSON RANCH D.
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF) 30,000 [16]

Documentation Bureau of Reclamation, 2005 [16], Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

Reason(s) Not Constructed

Summary Earthfill dam completed in 1950. Height 456 ft. Operated by BOR as a multi-purpose facility providing irrigation, power, flood control, and silt control. Exploration of two dam raise options – one identified by water users (6 ft), another for maximum flood safety and terrorist threats (16 ft). Current (2005) cost estimates included.

Arrowrock

Boise River Basin
Subbasin: BOISE-MORES
Type: Existing

Township: 03N County: BOISE
Range: 04E Quad.: ARROWROCK DAM
HUC: 17050112

Water Source(s) Boise River

Reservoir Cap. (AF) 3,155 [11], 35,290 [16], 6,336 [17]

Documentation Bureau of Reclamation, 1955 [11], Bureau of Reclamation, 2005 [16], Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

Reason(s) Not Constructed

Summary Concrete arch dam completed in 1915 and modified in 1937. Structural height of 350 ft. Operated by BOR as a multi-purpose facility providing flood control, power, irrigation, and recreation. New clam shell gates were installed in 2004.

Hubbard

Boise River Basin
Subbasin: LOWER BOISE
Type: Existing

Township: 02N County: ADA
Range: 01E Quad.: CLOVERDALE
HUC: 17050114

Water Source(s)

Reservoir Cap. (AF) 4,060 [14]

Documentation Bureau of Reclamation, 1979 [14]

Estimated Cost

Reason(s) Not Constructed

Summary Off-stream storage facility constructed in 1902. Shallow earthfill dam that contains little water most of the year. The main function of the reservoir is to provide emergency storage of water from the New York Canal. Rehabilitation of the reservoir due to Reclamation operation restrictions.

Lucky Peak

Boise River Basin
Subbasin: LOWER BOISE
Type: Existing

Township: 02N County: ADA
Range: 03E Quad.: LUCKY PEAK
HUC: 17050114

Water Source(s) Boise River
Reservoir Cap. (AF) 35,000 [19]
Documentation Bureau of Reclamation, 1994 [1], Idaho Department of Water Resources, 2004 [19], U.S. Army Corps of Engineers, 1995 [25]
Estimated Cost
Reason(s) Not Constructed Expansion precluded due to high capital cost [1]
Summary Earthfilled dam completed in 1961. Operated by USCOE for multiple uses that include flood control, irrigation, recreation, and fish and wildlife purposes. The power facility is operated by Seattle City Light and Power.

2.4 Unclassified Storage Sites (Boise)

12HD 1

Boise River Basin
Subbasin: BOISE-MORES
Type: Unclassified

Township: 04N County: BOISE
Range: 06E Quad.: TWIN SPRINGS
HUC: 17050112

Water Source(s) Boise River
Reservoir Cap. (AF) 220,000 AF [12]
Documentation Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12], Water Resources Research Institute, 1970 [21]
Estimated Cost
Reason(s) Not Constructed Twin Springs site preferred [12]
Summary Run-of-river hydropower development. Possibly included in Payette – Garden Valley diversion plan, otherwise insufficient runoff.

12HD 3

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Unclassified

Township: 06N County: ELMORE
Range: 11E Quad.: ATLANTA EAST
HUC: 17050111

Water Source(s) Middle Fork Boise River
Reservoir Cap. (AF)
Documentation Idaho Water Resources Research Institute, 1980 [5]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

12HD 4

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Unclassified

Township: 06N County: ELMORE
Range: 11E Quad.: ATLANTA WEST
HUC: 17050111

Water Source(s) Middle Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

12HD 6

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Unclassified

Township: 06N County: ELMORE
Range: 10E Quad.: PHIFER CREEK
HUC: 17050111

Water Source(s) Middle Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

12HD 7

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Unclassified

Township: 06N County: ELMORE
Range: 10E Quad.: PHIFER CREEK
HUC: 17050111

Water Source(s) Middle Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

12HD 9

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Unclassified

Township: 05N County: ELMORE
Range: 09E Quad.: GRAND MOUNTAIN
HUC: 17050111

Water Source(s) Middle Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

12HD 10

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Unclassified

Township: 05N County: ELMORE
Range: 09E Quad.: GRAND MOUNTAIN
HUC: 17050111

Water Source(s) Middle Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

12HD 11

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Unclassified

Township: 05N County: ELMORE
Range: 08E Quad.: GRAND MOUNTAIN
HUC: 17050111

Water Source(s) Middle Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12]

Estimated Cost

*Reason(s) Not
Constructed* Twin Springs site preferred [12]

Summary Run-of-river hydropower development.

12HD 13 (aka: Lower Deer Park)

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Unclassified

Township: 06N County: BOISE
Range: 08E Quad.: BEAR RIVER
HUC: 17050111

Water Source(s) North Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12], Water Resources Research Institute, 1970 [21]

Estimated Cost

Reason(s) Not Constructed Twin Springs site preferred [12]

Summary Proposed as a diversion dam (220 ft powerhead) development.

12HD 14 (aka: Tin Cup)

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Unclassified

Township: 06N County: ELMORE
Range: 08E Quad.: BIG OWL CREEK
HUC: 17050111

Water Source(s) North Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12], Water Resources Research Institute, 1970 [21]

Estimated Cost

Reason(s) Not Constructed Twin Springs site preferred [12]

Summary Proposed as a diversion dam (200 ft powerhead) development.

12HD 17

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: 03N County: CAMAS
Range: 12E Quad.: BOARDMAN CREEK
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12], Water Resources Research Institute, 1970 [21]

Estimated Cost

Reason(s) Not Constructed High unit cost

Summary Run-of-river hydropower development.

12HD 18

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: 03N County: CAMAS
Range: 12E Quad.: JUMBO MOUNTAIN
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], Water Resources Research Institute 1970 [21]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Alva Greene

Boise River Basin
Subbasin: MIDDLE SALMON-PANTHER
Type: Unclassified

Township: 10N County: LEMHI
Range: 05E Quad.: ULYSSES MOUNTAIN
HUC: 17060203

Water Source(s) Middle Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Anderson Ranch Rereg No 1

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: 01S County: ELMORE
Range: 08E Quad.: ANDERSON RANCH DAM
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF) 770 [27]

Documentation Water and Power Resources Service, 1980 [27]

Estimated Cost

Reason(s) Not Constructed

Summary Earthfill dam re-regulation site in steep canyon (9,200 ft downstream from Anderson Ranch Dam) with poor foundation materials. Dam would be 36 ft high, with a 450 ft crest length, USFS access road would need to be relocated.

Anderson Ranch Rereg No 2

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: 01S County: ELMORE
Range: 08E Quad.: ANDERSON RANCH DAM
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF) 2,600 [27]

Documentation Water and Power Resources Service, 1980 [27]

Estimated Cost

*Reason(s) Not
Constructed*

Summary Earthfill dam re-regulation site in steep canyon downstream from Anderson Ranch Dam with poor foundation materials. Dam would be 48 ft high, with a 560 ft crest length.

Atlanta

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Unclassified

Township: 06N County: ELMORE
Range: 12E Quad.: ATLANTA EAST
HUC: 17050111

Water Source(s) Middle Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Blacks Lake

Boise River Basin
Subbasin:
Type: Unclassified

Township: County:
Range: Quad.:
HUC:

Water Source(s) Blacks Creek, Tenmile Creek, Boise River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

GWP 13

Boise River Basin
Subbasin:
Type: Unclassified

Township:
Range:
HUC:

County:
Quad.:

Water Source(s) Boise River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

North Fork Boise River

Boise River Basin
Subbasin:
Type: Unclassified

Township:
Range:
HUC:

County:
Quad.:

Water Source(s) North Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Trail Creek

Boise River Basin
Subbasin: NORTH AND MIDDLE FORK BOISE
Type: Unclassified

Township: 07N County: BOISE
Range: 10E Quad.: SWANHOLM PEAK
HUC: 17050111

Water Source(s) North Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20]

Estimated Cost

Reason(s) Not Constructed

Summary Diversion conduit with 5.8-mile pipeline to powerhouse.

Unnamed, Fall Creek

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: 02N County: ELMORE
Range: 10E Quad.: PINE
HUC: 17050113

Water Source(s) Fall Creek

Reservoir Cap. (AF)

Documentation Idaho Department of Water Resources, 1990 [23]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Unnamed, Fall Creek

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: 01N County: ELMORE
Range: 09E Quad.: HOUSE MOUNTAIN
HUC: 17050113

Water Source(s) Fall Creek

Reservoir Cap. (AF)

Documentation Idaho Department of Water Resources, 1990 [23]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Unnamed, Lime Creek

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: 01N County: ELMORE
Range: 10E Quad.: PINE
HUC: 17050113

Water Source(s) Lime Creek

Reservoir Cap. (AF)

Documentation Idaho Department of Water Resources, 1990 [23]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Unnamed, SF Boise

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: 05N County: CAMAS
Range: 13E Quad.: MARSHALL PEAK
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho Department of Water Resources, 1990 [23]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Unnamed, SF Boise

Boise River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: 03N County: CAMAS
Range: 14E Quad.: SYDNEY BUTTE
HUC: 17050113

Water Source(s) South Fork Boise River

Reservoir Cap. (AF)

Documentation Idaho Department of Water Resources, 1990 [23]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

3. Payette River Basin

This chapter provides a summary of potential on-stream and off-stream storage sites in the Payette River Basin (see basin map in Section II for location of each site). Existing facilities are also listed and summarized. Those facilities that were not identified as either on-stream, off-stream, or existing are considered “unclassified.”

3.1 Potential On-stream Storage Sites (Payette)

Alkali Creek

Payette River Basin	Township: 09N	County:
Subbasin: PAYETTE	Range: 02W	Quad.:
Type: On-stream	HUC: 17050122	
<i>Water Source(s)</i>	Alkali Creek, Willow Creek	
<i>Reservoir Cap. (AF)</i>	5,000 [12]	
<i>Documentation</i>	Bureau of Reclamation, 1961 [12]	
<i>Estimated Cost</i>		
<i>Reason(s) Not Constructed</i>	Inadequate runoff [12]	
<i>Summary</i>	No description available.	

Archie Creek (aka: Kirkham Hot Springs)

Payette River Basin	Township: 09N	County: BOISE
Subbasin: SOUTH FORK PAYETTE	Range: 08E	Quad.: JACKSON PEAK
Type: On-stream	HUC: 17050120	
<i>Water Source(s)</i>	South Fork Payette River	
<i>Reservoir Cap. (AF)</i>	140,000 [1], 270,000 [21]	
<i>Documentation</i>	Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20], Water Resources Research Institute, 1970 [21], Bureau of Reclamation, 1961 [12]	
<i>Estimated Cost</i>		
<i>Reason(s) Not Constructed</i>	High unit cost [12], Road and game preserve [12]	
<i>Summary</i>	Dam (374 ft) with estimated 35-100 ft of powerhead.	

Big Pine Creek

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: On-stream

Township: 09N County: BOISE
Range: 06E Quad.: GRIMES PASS
HUC: 17050120

Water Source(s) South Fork Payette River

Reservoir Cap. (AF) 110,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20], Water Resources Research Institute, 1970 [21], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Garden Valley site preferred [12]

Summary Run-of-river powerhead development (295 ft) between Oxbow site tailwater and Garden Valley backwater (reach includes Pine Flats site).

Bogus Creek

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: On-stream

Township: 11N County: VALLEY
Range: 03E Quad.: SMITHS FERRY
HUC: 17050123

Water Source(s) North Fork Payette River

Reservoir Cap. (AF) 33,000 [1], 33,000 [8], 33,000 [18]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], Idaho Water Resource Board, 1999 [8], Idaho National Engineering and Environmental Laboratory, 1998 [17], Idaho Department of Water Resources, 1976 [18], United States Geological Survey, 1965 [20]

Estimated Cost

Reason(s) Not Constructed

Summary Low-head development (182 ft) at mile 19.8, replaces Cabarton site. Narrow canyon damsite with infrastructure concerns upstream from Upper Scriver Creek backwater limit.

Boiling Springs

Payette River Basin
Subbasin: MIDDLE FORK PAYETTE
Type: On-stream

Township: 11N County: VALLEY
Range: 05E Quad.: BOILING SPRING
HUC: 17050121

Water Source(s) Middle Fork Payette River

Reservoir Cap. (AF) 70,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], United States Geological Survey, 1965 [20]

Estimated Cost

Reason(s) Not Constructed

Summary Dam (200 ft high) at backwater limit of Rocky Canyon site, carrying water 250 ft via 4.0-mile gravity conduit to mouth of Silver Creek.

Bull Trout Lake

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: On-stream

Township: 11N County: BOISE
Range: 10E Quad.: BULL TROUT POINT
HUC: 17050120

Water Source(s) Warm Springs Creek

Reservoir Cap. (AF) 15,000 [12]

Documentation Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Unfavorable geology, possible excessive leakage [12]

Summary No description available.

Cabarton

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: On-stream

Township: 13N County: VALLEY
Range: 04E Quad.: ALPHA
HUC: 17050123

Water Source(s) North Fork Payette River

Reservoir Cap. (AF) 1,400,000 [1], 66,000 - 95,000 [4], 1,400,000 [12]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1938 [9], Bureau of Reclamation, 1955 [11], Bureau of Reclamation, 1961 [12]

Estimated Cost \$622,000 - \$950,000 [9]

Reason(s) Not Constructed Cascade Reservoir constructed upstream [12]

Summary No description available.

Canyon Creek

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: On-stream

Township: 10N County: BOISE
Range: 10E Quad.: GRANDJEAN
HUC: 17050120

Water Source(s) South Fork Payette River
Reservoir Cap. (AF) 33,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20], Water Resources Research Institute, 1970 [21], Bureau of Reclamation, 1961 [12]
Estimated Cost
Reason(s) Not Constructed High unit cost [12]
Summary Low-head dam (225 ft of powerhead).

Casner Creek (aka: 12HG 11)

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: On-stream

Township: 09N County: BOISE
Range: 09E Quad.: JACKSON PEAK
HUC: 17050120

Water Source(s) South Fork Payette River
Reservoir Cap. (AF) 142,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20], Water Resources Research Institute, 1970 [21], Bureau of Reclamation, 1961 [12]
Estimated Cost
Reason(s) Not Constructed High unit cost [12]
Summary Dam (440 ft high) would flood Warm Springs, possible hydropower.

Cottonwood Creek

Payette River Basin
Subbasin: PAYETTE
Type: On-stream

Township: 10N County: GEM
Range: 01E Quad.: OLA
HUC: 17050122

Water Source(s) Squaw Creek
Reservoir Cap. (AF) 50,000 [1], 50,000 [12]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Water Resources Research Institute, 1970 [21], Bureau of Reclamation, 1961 [12]
Estimated Cost
Reason(s) Not Constructed Adjacent farm area [12]
Summary No description available.

Garden Valley

Payette River Basin
Subbasin: PAYETTE
Type: On-stream

Township: 09N County: BOISE
Range: 03E Quad.: BANKS
HUC: 17050122

Water Source(s) North Fork Payette River, Payette River, South Fork Payette River

Reservoir Cap. (AF) 1,940,000 [1], 2,400,000 [3], 1,940,000 [8], 1,330,000 [9], 1,940,000 [12], 1,940,000 [20], 2,400,000 [22]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1980 [5], Idaho Water Resource Board, 1999 [8], Bureau of Reclamation, 1938 [9], Bureau of Reclamation, 1955 [11], Bureau of Reclamation, 1961 [12], Bureau of Reclamation, 1966 [13], United States Geological Survey, 1965 [20], Water Resources Research Institute, 1970 [21], Southwest Idaho Water Development Project, 1966 [22]

Estimated Cost \$50,805,000 [3], \$9,600,000 [9]

Reason(s) Not Constructed

Summary Diversion facilities would take water from the North Fork Payette River through Scriver Creek power facilities to the reservoir site. A re-regulating dam would be located about 3 miles downstream of the Garden Valley Dam.

Garden Valley Re-regulating

Payette River Basin
Subbasin: PAYETTE
Type: On-stream

Township: 09N County: BOISE
Range: 03E Quad.: BANKS
HUC: 17050122

Water Source(s) South Fork Payette River, Payette River

Reservoir Cap. (AF) 8,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1966 [13], United States Geological Survey, 1965 [20], Water Resources Research Institute, 1970 [21]

Estimated Cost

Reason(s) Not Constructed

Summary Dam at mile 73.5 (130 ft high and 435 ft crest length), potential powerhead of 120 ft.

Gold Fork

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: On-stream

Township: 16N County: VALLEY
Range: 04E Quad.: SLOANS POINT
HUC: 17050123

Water Source(s) Gold Fork River

Reservoir Cap. (AF) 79,700 [8], 80,000 [9], 80,000 [12], 80,000 [18]

Documentation Idaho Water Resources Research Institute, 1980 [5], Idaho Water Resource Board, 1996 [7], Idaho Water Resource Board, 1999 [8], Bureau of Reclamation, 1938 [9], Bureau of Reclamation, 1961 [12], Idaho Department of Water Resources, 1976 [18]

Estimated Cost

Reason(s) Not Constructed High construction cost and conflict with irrigation development [1]

Summary Proposed new canal construction to supply for 10,000 acres. Redistribution system proposed between Boulder and Lake Fork Creeks. The project proposes a dam, reservoir, canals, lateral systems, fish facilities, and maintenance facilities. A very limited cost to benefit analysis is conducted.

Grand Jean

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: On-stream

Township: 09N County: BOISE
Range: 11E Quad.: GRANDJEAN
HUC: 17050120

Water Source(s) South Fork Payette River

Reservoir Cap. (AF) 88,000 [1], 88,000 [8], 90,000 [9], 88,000 [12]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resource Board, 1999 [8], Bureau of Reclamation, 1938 [9], Bureau of Reclamation, 1961 [12], United States Geological Survey, 1965 [20], Water Resources Research Institute, 1970 [21]

Estimated Cost

Reason(s) Not Constructed Mining claim inundation, high const. cost [1], Garden Valley site preferred [12]

Summary Potential powerhead of 260 ft.

Horseshoe Bend

Payette River Basin
Subbasin: PAYETTE
Type: On-stream

Township: 07N County: BOISE
Range: 02E Quad.: MONTOUR
HUC: 17050122

Water Source(s) Payette River
Reservoir Cap. (AF) 480,000 [1], 600,000 [21]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], Water Resources Research Institute, 1970 [21]
Estimated Cost
Reason(s) Not Constructed Garden Valley site preferred [12]
Summary Dam at mile 52.4, potential powerhead of 575 ft Potential right-of-way issues.

Jake's Creek

Payette River Basin
Subbasin: PAYETTE
Type: On-stream

Township: 09N County: PAYETTE
Range: 01W Quad.: SQUAW BUTTE
HUC: 17050122

Water Source(s) Jake's Creek, Willow Creek
Reservoir Cap. (AF) 3,800 [12]
Documentation Bureau of Reclamation, 1961 [12]
Estimated Cost
Reason(s) Not Constructed Inadequate runoff [12]
Summary No description available.

Lowman

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: On-stream

Township: 09N County: BOISE
Range: 07E Quad.: PINE FLAT
HUC: 17050120

Water Source(s) South Fork Payette River
Reservoir Cap. (AF)
Documentation Idaho Water Resources Research Institute, 1980 [5], Water Resources Research Institute 1970 [21], Bureau of Reclamation, 1961 [12]
Estimated Cost
Reason(s) Not Constructed Land use issue in Lowman area [12]
Summary Powerhead of 50 ft.

MacIntyre Gulch

Payette River Basin
Subbasin: PAYETTE
Type: On-stream

Township: 09N County: PAYETTE
Range: 03W Quad.: SHEEP RIDGE
HUC: 17050122

Water Source(s) MacIntyre Gulch, Little Willow Creek
Reservoir Cap. (AF) 1,000 [12]
Documentation Bureau of Reclamation, 1961 [12]
Estimated Cost
Reason(s) Not Constructed Runoff controlled by upstream reservoir [12]
Summary No description available.

Ola (aka: Squaw Creek) (aka: Squaw Valley)

Payette River Basin
Subbasin: PAYETTE
Type: On-stream

Township: 09N County: GEM
Range: 01E Quad.: OLA
HUC: 17050122

Water Source(s) Squaw Creek, Little Squaw Creek
Reservoir Cap. (AF) 93,000 [1], 50,000 [9], 93,000 [12]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1938 [9], Bureau of Reclamation, 1961 [12], Water Resources Research Institute, 1970 [21], Bureau of Reclamation, 1955 [11]
Estimated Cost
Reason(s) Not Constructed Infrastructure and existing irrigation [12], dry year hydrology [1]
Summary Feeder canal from Little Squaw Creek.

Oxbow Bend

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: On-stream

Township: 09N County: BOISE
Range: 07E Quad.: PINE FLAT
HUC: 17050120

Water Source(s) South Fork Payette River
Reservoir Cap. (AF) 60,000 [1], 70,000 [21]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], Idaho National Engineering and Environmental Laboratory, 1998 [17], United States Geological Survey, 1965 [20], Water Resources Research Institute, 1970 [21], Bureau of Reclamation, 1961 [12]
Estimated Cost
Reason(s) Not Constructed Garden Valley site preferred [12]
Summary Dam at mile 104.7 (215 ft high and 400 ft crest length), plus another 30 ft of head via 800-ft tunnel, powerhouse site is 1.1 miles downstream.

Peace Valley

Payette River Basin
Subbasin: MIDDLE FORK PAYETTE
Type: On-stream

Township: 12N County: VALLEY
Range: 05E Quad.: BOILING SPRING
HUC: 17050121

Water Source(s) Silver Creek

Reservoir Cap. (AF) 13,000 [5], 13,000 [8], 13,000 [12], 13,000 [20]

Documentation Idaho Water Resources Research Institute, 1980 [5], Idaho Water Resource Board, 1999 [8], Bureau of Reclamation, 1961 [12], United States Geological Survey, 1965 [20]

Estimated Cost

Reason(s) Not Constructed High unit cost [12], Garden Valley site preferred [12]

Summary Reservoir site would store water to develop head (850 ft) via 3-mile conduit to Boiling Springs powerhouse.

Rocky Canyon

Payette River Basin
Subbasin: MIDDLE FORK PAYETTE
Type: On-stream

Township: 11N County: VALLEY
Range: 05E Quad.: SIXMILE POINT
HUC: 17050121

Water Source(s) Middle Fork Payette River

Reservoir Cap. (AF) 23,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20]

Estimated Cost

Reason(s) Not Constructed

Summary Low-head dam (150 ft high and 700 ft long), carries water via 0.75-mile conduit to powerhouse at Garden Valley backwater (265 ft elevation difference).

Sand Hollow

Payette River Basin
Subbasin: PAYETTE
Type: On-stream

Township: 07N County: PAYETTE
Range: 04W Quad.: NEW PLYMOUTH
HUC: 17050122

Water Source(s) Sand Hollow Creek

Reservoir Cap. (AF) 39,000 [1], 39,000 [12]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Raise groundwater table [1], High pumping cost [1]

Summary Sand Hollow project proposes a damsite that would be supplemented by pumped water from the Payette. Expected to only affect a small amount of farmland.

Scott Creek

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: On-stream

Township: 10N County: BOISE
Range: 07E Quad.: SCOTT CREEK
HUC: 17050120

Water Source(s) Deadwood River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20], Water Resources Research Institute, 1970 [21]

Estimated Cost

Reason(s) Not Constructed

Summary Dam would raise water 360 ft with 1,200-ft-long crest.

Scott Valley

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: On-stream

Township: 14N County: VALLEY
Range: 04E Quad.: EAGLE NEST
HUC: 17050123

Water Source(s) Big Creek

Reservoir Cap. (AF) 18,000 [1], 18,000 [9], 18,000 [12]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Bureau of Reclamation, 1938 [9], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Small storage and possible leakage [1]. Cascade Reservoir storage [12].

Summary No description available.

Smith Ferry

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: On-stream

Township: 11N County: VALLEY
Range: 03E Quad.: SMITHS FERRY
HUC: 17050123

Water Source(s) North Fork Payette River

Reservoir Cap. (AF) 95,000 [9]

Documentation Bureau of Reclamation, 1938 [9], Bureau of Reclamation, 1955 [11], Bureau of Reclamation, 1966 [13]

Estimated Cost \$2,300,000 [9]

Reason(s) Not Constructed

Summary No description available.

Steep Creek (aka: Sheep Creek)

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: On-stream

Township: 09N County: BOISE
Range: 07E Quad.: LOWMAN
HUC: 17050120

Water Source(s) South Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20], Water Resources Research Institute, 1970 [21], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Right-of-way issues [12]

Summary Damsite at mile 111.6, floods Kirkham Hot Spring damsite, 85 to 125 ft of potential powerhead.

Tamarack Falls

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: On-stream

Township: 16N County: VALLEY
Range: 03E Quad.: LONE TREE
HUC: 17050123

Water Source(s) North Fork Payette River

Reservoir Cap. (AF) 20,000 [5], 20,000 [9]

Documentation Idaho Water Resources Research Institute, 1980 [5], Idaho Water Resource Board, 1999 [8], Bureau of Reclamation, 1938 [9]

Estimated Cost

Reason(s) Not Constructed Inundated by Cascade Dam construction

Summary No description available.

3.2 Potential Off-stream Storage Sites (Payette)

Anderson Creek

Payette River Basin
Subbasin: MIDDLE FORK PAYETTE
Type: Off-stream

Township: 09N County: BOISE
Range: 04E Quad.: GARDEN VALLEY
HUC: 17050121

Water Source(s) South Fork Payette River

Reservoir Cap. (AF) 51,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Beaver Creek

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Off-stream

Township: 11N County: VALLEY
Range: 03E Quad.: SMITHS FERRY
HUC: 17050123

Water Source(s) North Fork Payette River
Reservoir Cap. (AF)
Documentation Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12]
Estimated Cost
Reason(s) Not Constructed Smiths Ferry-Scriver Creek complex preferred [12]
Summary Possible diversion canal and powerhead development.

Big Creek

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: County:
Range: Quad.:
HUC:

Water Source(s) North Fork Payette River
Reservoir Cap. (AF) 400,000 [3]
Documentation U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Big Eddy

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Off-stream

Township: 11N County: VALLEY
Range: 03E Quad.: SMITHS FERRY
HUC: 17050123

Water Source(s) North Fork Payette River
Reservoir Cap. (AF)
Documentation Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12],
Estimated Cost
Reason(s) Not Constructed Smiths Ferry-Scriver Creek complex preferred [12]
Summary Possible diversion canal and powerhead development.

Big Willow Creek

Payette River Basin
Subbasin: PAYETTE
Type: Off-stream

Township: 08N County: PAYETTE
Range: 03W Quad.: SHEEP RIDGE
HUC: 17050122

Water Source(s) Payette River, Weiser River
Reservoir Cap. (AF) 310,000 [1], 313,000 [4]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1979 [4]
Estimated Cost
Reason(s) Not Constructed Infrastructure [1]
Summary No description available.

Birding Island

Payette River Basin
Subbasin: PAYETTE
Type: Off-stream

Township: 08N County: PAYETTE
Range: 04W Quad.: BIRDING ISLAND
HUC: 17050122

Water Source(s) Payette River
Reservoir Cap. (AF) 175,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Bissel Creek

Payette River Basin
Subbasin: PAYETTE
Type: Off-stream

Township: 07N County: GEM
Range: 02W Quad.: NORTHWEST EMMETT
HUC: 17050122

Water Source(s) Payette River
Reservoir Cap. (AF) 153,500 [1], 187,000 [3], 200,000 [4], 153,500 [8]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1979 [4], Idaho Water Resource Board, 1999 [8]
Estimated Cost \$189,000,000 [1]
Reason(s) Not Constructed Raise groundwater table [1], High pumping cost [2]
Summary Bissel Creek project proposes a 157,000-acre damsite that would be supplemented by pumped water from the Payette. The proposed site is 3.6-miles from the Snake River and would be supplied by a buried pipeline.

Boulder Creek

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Off-stream

Township: 18N County: VALLEY
Range: 04E Quad.: FITSUM SUMMIT
HUC: 17050123

Water Source(s) Lake Fork Creek, Boulder Creek, North Fork Payette River

Reservoir Cap. (AF) 93,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Browns Pond

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: County:
Range: Quad.:
HUC:

Water Source(s) North Fork Payette River

Reservoir Cap. (AF) 92,000 [3]

Documentation U.S. Army Corps of Engineers, 1981 [3], Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Cloverleaf

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: Off-stream

Township: 09N County: BOISE
Range: 07E Quad.: SCOTT CREEK
HUC: 17050120

Water Source(s) Deadwood River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20], Water Resources Research Institute, 1970 [21], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Garden Valley site preferred [12]

Summary Re-regulation and diversion dam downstream from Scott Creek site. Proposed dam (260 ft high and 700 ft long) plus 865 ft of head via gravity conduit to powerhouse site at backwater limit of Oxbow Bend site.

Crystal School

Payette River Basin
Subbasin: PAYETTE
Type: Off-stream

Township: 09N County: PAYETTE
Range: 05W Quad.: PAYETTE
HUC: 17050122

Water Source(s) Payette River, Snake River

Reservoir Cap. (AF) 91,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Deadwood River

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: Off-stream

Township: 11N County: VALLEY
Range: 07E Quad.: DEADWOOD RIVER
HUC: 17050120

Water Source(s) Deadwood River, South Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Garden Valley site preferred [12]

Summary Power tunnel (3.3 miles) from Deadwood Dam for powerhead.

Dry Buck Creek

Payette River Basin
Subbasin: PAYETTE
Type: Off-stream

Township: 09N County: BOISE
Range: 02E Quad.: DRY BUCK VALLEY
HUC: 17050122

Water Source(s) Payette River

Reservoir Cap. (AF) 380,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Eightmile

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: Off-stream

Township: 10N County: BOISE
Range: 09E Quad.: MILLER MOUNTAIN EAST
HUC: 17050120

Water Source(s) Eightmile Creek

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20]

Estimated Cost

Reason(s) Not Constructed

Summary Diversion to Casner Creek powerhouse.

Fogus Site

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: Off-stream

Township: 10N County: BOISE
Range: 10E Quad.: GRANDJEAN
HUC: 17050120

Water Source(s) Canyon Creek

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20]

Estimated Cost

Reason(s) Not Constructed Wilderness recommendation area, economically unfavorable [20]

Summary Diversion in headwaters of Canyon Creek, carry water 955 ft to Canyon Creek powerhouse site.

Garden Valley

Payette River Basin
Subbasin: MIDDLE FORK PAYETTE
Type: Off-stream

Township: 09N County: BOISE
Range: 04E Quad.: GARDEN VALLEY
HUC: 17050121

Water Source(s)

Reservoir Cap. (AF) 576,000 [5]

Documentation Idaho Water Resources Research Institute, 1980 [5], Water Resources Research Institute 1970 [21]

Estimated Cost

Reason(s) Not Constructed

Summary

Diversion facilities would take water from the North Fork Payette River through Scriver Creek power facilities to the reservoir site. A re-regulating dam would be located about 3 miles downstream of the Garden Valley Dam.

Gold Fork

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Off-stream

Township: 13N County: VALLEY
Range: 04E Quad.: SKUNK CREEK SUMMIT
HUC: 17050123

Water Source(s) North Fork Payette River

Reservoir Cap. (AF) 930,000 [3]

Documentation U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary

No description available.

Grassy Flat

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Off-stream

Township: 12N County: VALLEY
Range: 04E Quad.: SKUNK CREEK SUMMIT
HUC: 17050123

Water Source(s) North Fork Payette River

Reservoir Cap. (AF) 32,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary

No description available.

Green Mountain

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Off-stream

Township: 17N County: VALLEY
Range: 05E Quad.: BLACKMARE
HUC: 17050123

Water Source(s) Rapid Creek

Reservoir Cap. (AF) 24,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Haw Creek

Payette River Basin
Subbasin: PAYETTE
Type: Off-stream

Township: 07N County: GEM
Range: 01W Quad.: NORTHEAST EMMETT
HUC: 17050122

Water Source(s) Payette River

Reservoir Cap. (AF) 33,000 [1], 35,000 [4]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1979 [4]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

High Valley

Payette River Basin
Subbasin: PAYETTE
Type: Off-stream

Township: 10N County: GEM
Range: 02E Quad.: HIGH VALLEY
HUC: 17050122

Water Source(s) North Fork Payette River

Reservoir Cap. (AF) 1,760,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Horsethief Basin

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Off-stream

Township: 14N County: VALLEY
Range: 04E Quad.: EAGLE NEST
HUC: 17050123

Water Source(s) Big Creek

Reservoir Cap. (AF) 75,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Kennally Creek

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Off-stream

Township: 16N County: VALLEY
Range: 04E Quad.: SLOANS POINT
HUC: 17050123

Water Source(s) Gold Fork River, Boulder Creek

Reservoir Cap. (AF) 330,000 [3], 351,000 [4]

Documentation U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1979 [4]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Little Willow Creek

Payette River Basin
Subbasin: PAYETTE
Type: Off-stream

Township: 09N County: PAYETTE
Range: 03W Quad.: HOLLAND GULCH
HUC: 17050122

Water Source(s) Payette River

Reservoir Cap. (AF) 85,000 [1], 1,000 [12]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Infrastructure [1], Runoff controlled by upstream reservoir [12]

Summary No description available.

Lower Scriver Creek (aka: Scriver Creek)

Payette River Basin
Subbasin: MIDDLE FORK PAYETTE
Type: Off-stream

Township: 10N County: BOISE
Range: 04E Quad.: PYLE CREEK
HUC: 17050121

Water Source(s) North Fork Payette River, Middle Fork Payette River

Reservoir Cap. (AF) 44,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Bureau of Reclamation, 1955 [11], United States Geological Survey, 1965 [20]

Estimated Cost

Reason(s) Not Constructed

Summary Supply tunnel from the North Fork of the Payette River to fill earthfill dam. Two power plants operate within site—one upper from North Fork flow and another tunnel downstream from the dam.

Lower Shafer Creek

Payette River Basin
Subbasin: PAYETTE
Type: Off-stream

Township: 06N County: BOISE
Range: 03E Quad.: HORSESHOE BEND
HUC: 17050122

Water Source(s) Payette River

Reservoir Cap. (AF) 34,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Lower Squaw Creek

Payette River Basin
Subbasin: PAYETTE
Type: Off-stream

Township: 08N County: GEM
Range: 01E Quad.: WEBB CREEK
HUC: 17050122

Water Source(s) North Fork Payette River

Reservoir Cap. (AF) 550,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary The water supply for this site would come from a 12-mile tunnel diversion from the North Fork Payette River at Smiths Ferry. This scheme proposes development of 1,500 ft of hydraulic head for power purposes in the trans-basin diversion. A brief economic analysis of costs indicates that power revenues should be greater than the costs of the dam, power plant, and tunnel development.

Mains

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Off-stream

Township: 10N County: VALLEY
Range: 03E Quad.: PACKER JOHN MOUNTAIN
HUC: 17050123

Water Source(s) North Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Smiths Ferry-Scriver Creek complex preferred [12]

Summary Possible diversion canal and powerhead development.

Middle Fork Payette River

Payette River Basin
Subbasin: MIDDLE FORK PAYETTE
Type: Off-stream

Township: 10N County: BOISE
Range: 04E Quad.: PYLE CREEK
HUC: 17050121

Water Source(s) North Fork Payette River, Middle Fork Payette River
Reservoir Cap. (AF) 1,600,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Montour Valley (aka: Montour)

Payette River Basin
Subbasin: PAYETTE
Type: Off-stream

Township: 07N County: GEM
Range: 01E Quad.: MONTOUR
HUC: 17050122

Water Source(s) Payette River
Reservoir Cap. (AF) 32,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], Idaho Water Resources Research Institute, 1980 [5], Idaho National Engineering and Environmental Laboratory, 1998 [17], United States Geological Survey, 1965 [20]
Estimated Cost
Reason(s) Not Constructed
Summary Diversion and conduit between Horseshoe Bend tailrace and Black Canyon reservoir (elevation change of 53 ft).

Pidgeon Flat

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: County:
Range: Quad.:
HUC:

Water Source(s) South Fork Payette River
Reservoir Cap. (AF) 490,000 [3]
Documentation U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

Round Valley

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Off-stream

Township: 12N County: VALLEY
Range: 04E Quad.: SMITHS FERRY
HUC: 17050123

Water Source(s) North Fork Payette River
Reservoir Cap. (AF) 430,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Bureau of Reclamation, 1938 [9]
Estimated Cost
Reason(s) Not Constructed High canal system construction cost and low run-off
Summary No description available.

Sand Hollow

Payette River Basin
Subbasin: PAYETTE
Type: Off-stream

Township: 07N County: GEM
Range: 03W Quad.: LETHA
HUC: 17050122

Water Source(s) Payette River
Reservoir Cap. (AF) 145,000 [1], 68,000 [4]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1979 [4]
Estimated Cost
Reason(s) Not Constructed Infrastructure [1]
Summary Expected to only affect a small amount of farmland. Dropped due to potential for raising groundwater levels downstream of dam and reservoir site. Pumping costs are expected to be high.

Scott Valley

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Off-stream

Township: 14N County: VALLEY
Range: 04E Quad.: EAGLE
HUC: 17050123

Water Source(s) North Fork Payette River, Gold Fork River, Big Creek
Reservoir Cap. (AF) 131,000 [3]
Documentation U.S. Army Corps of Engineers, 1981 [3], Bureau of Reclamation, 1961 [12]
Estimated Cost
Reason(s) Not Constructed Conflicts with storage in Cascade Reservoir [12]
Summary No description available.

Scriver Creek (aka: West Fork Scriver Creek) (aka: Upper Scriver)

Payette River Basin
Subbasin: MIDDLE FORK PAYETTE

Township: 10N County: BOISE
Range: 04E Quad.: PACKER JOHN
MOUNTAIN

Type: Off-stream

HUC: 17050121

Water Source(s) North Fork Payette River, Scriver Creek

Reservoir Cap. (AF)

Documentation Bureau of Reclamation, 1955 [11], Bureau of Reclamation, 1966 [13], Idaho National Engineering and Environmental Laboratory, 1998 [17], United States Geological Survey, 1965 [20]

Estimated Cost

Reason(s) Not Constructed

Summary This project involves the diversion of flows from Smith's Ferry in the North Fork Payette through a tunnel and into Scriver Creek within the South Fork Payette River. The change in elevation would provide hydropower production from the Scriver Creek facility. The Garden Valley Reservoir would provide flood control, irrigation storage, and re-regulation for power production. A very limited cost-to-benefit analysis was conducted.

Slick Rock

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Off-stream

Township: County:
Range: Quad.:
HUC:

Water Source(s) Lake Fork Creek tributaries

Reservoir Cap. (AF) 35,000 [3]

Documentation U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Sweet

Payette River Basin
Subbasin: PAYETTE
Type: Off-stream

Township: 08N County: GEM
Range: 01E Quad.: MONTOUR
HUC: 17050122

Water Source(s) Payette River

Reservoir Cap. (AF) 148,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Tripod Creek

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Off-stream

Township: 11N County: VALLEY
Range: 03E Quad.: SMITHS FERRY
HUC: 17050123

Water Source(s) North Fork Payette River

Reservoir Cap. (AF) 54,000 [1], 57,000 [4]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1979 [4]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Upper Big Willow Creek

Payette River Basin
Subbasin: PAYETTE
Type: Off-stream

Township: 08N County: PAYETTE
Range: 02W Quad.: HOG COVE BUTTE
HUC: 17050122

Water Source(s) North Fork Payette River, Little Weiser River

Reservoir Cap. (AF) 350,000 [1], 160,000 [4]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1979 [4]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Upper Shafer Creek

Payette River Basin
Subbasin: PAYETTE
Type: Off-stream

Township: 06N County: BOISE
Range: 02E Quad.: CARTWRIGHT CANYON
HUC: 17050122

Water Source(s) Payette River

Reservoir Cap. (AF) 93,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Upper Squaw Creek

Payette River Basin
Subbasin: PAYETTE
Type: Off-stream

Township: 09N County: GEM
Range: 01E Quad.: WEBB CREEK
HUC: 17050122

Water Source(s) North Fork Payette River

Reservoir Cap. (AF) 2,600,000 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary

The water supply for this would come from an 11-mile tunnel diversion from the North Fork Payette River at Smiths Ferry. This site considers a large reservoir that provides much more flexibility in high-flow years. Power plants would be located at the tunnel outlet from the Smiths Ferry diversion and at the Squaw Creek dam. This scheme proposes development of 1,500 ft of hydraulic head for power purposes in the transbasin diversion. A brief economic analysis of costs indicates that power revenues should be greater than the costs of the dam, power plant, and tunnel

Warm Spring Creek

Payette River Basin
Subbasin: MIDDLE FORK PAYETTE
Type: Off-stream

Township: 10N County: BOISE
Range: 05E Quad.: LIGHTNING RIDGE
HUC: 17050121

Water Source(s) South Fork Payette River

Reservoir Cap. (AF) 61,500 [1]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]

Estimated Cost

Reason(s) Not Constructed

Summary

No description available.

Wash Creek

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: Off-stream

Township: 08N County: BOISE
Range: 04E Quad.: GARDEN VALLEY
HUC: 17050120

Water Source(s) South Fork Payette River
Reservoir Cap. (AF) 55,000 [1]
Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3]
Estimated Cost
Reason(s) Not Constructed
Summary No description available.

3.3 Existing Storage Sites (Payette)

Big Payette Lake

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Existing

Township: 18N County: VALLEY
Range: 03E Quad.: MCCALL
HUC: 17050123

Water Source(s) Payette River
Reservoir Cap. (AF)
Documentation Bureau of Reclamation, 1961 [12]
Estimated Cost
Reason(s) Not Constructed Expansion precluded due to recreational area [12]
Summary Achieves added capacity by lowering lake outlet. Constructed in 1944 as a storage facility, and operated by the Payette Lake Reservoir Company for irrigation, recreation, and fish and wildlife. Operations are coordinated with BOR facilities within the Payette River Basin [2].

Black Canyon

Payette River Basin
Subbasin: PAYETTE
Type: Existing

Township: 07N County: GEM
Range: 01W Quad.: NORTHEAST EMMETT
HUC: 17050122

Water Source(s) Payette River

Reservoir Cap. (AF) 180,000 [3], 500 [15]

Documentation U.S. Army Corps of Engineers, 1981 [3], Bureau of Reclamation, 1997 [15], Idaho National Engineering and Environmental Laboratory, 1998 [17], Water Resources Research Institute, 1970 [21]

Estimated Cost

Reason(s) Not Constructed

Summary Black Canyon Dam is a concrete gravity dam that was completed in 1924 and last modified in 1955. The structural height of the dam is 183 ft and the facility is operated by the BOR for power and irrigation purposes. One proposal recommends modifying flashboards to increase capacity by 500 AF for irrigation.

Little Payette Lake

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Existing

Township: 18N County: VALLEY
Range: 03E Quad.: MCCALL
HUC: 17050123

Water Source(s) Lake Fork Creek

Reservoir Cap. (AF) 37,000 [1], 63,000 [12]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Enlarged site plans unfavorable due to geology [12]

Summary Constructed in 1926 as a storage facility, and operated by the Payette Lake Reservoir Company for irrigation and recreation. Operations are coordinated with BOR facilities within the Payette River Basin [2].

Upper Payette Lake

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Existing

Township: 21N County: VALLEY
Range: 04E Quad.: BLACK TIP
HUC: 17050123

Water Source(s) Summit Creek

Reservoir Cap. (AF) 98,000 [1], 49,000 [5], 49,000 [8], 37,000 [9], 37,000 [12], 50,000 [18], 49,000 [20]

Documentation Bureau of Reclamation, 1994 [1], Bureau of Reclamation, 1992 [2], U.S. Army Corps of Engineers, 1981 [3], Idaho Water Resources Research Institute, 1980 [5], Idaho Water Resource Board, 1999 [8], Bureau of Reclamation, 1938 [9], Bureau of Reclamation, 1955 [11], Bureau of Reclamation, 1961 [12], Idaho Department of Water Resources, 1976 [18], United States Geological Survey, 1965 [20]

Estimated Cost \$600,000 [9]

Reason(s) Not Constructed Relocate forest highway [1], Unfavorable geology, Garden Valley site preferred [12]

Summary Operated and owned by the Payette Lake Reservoir Company for irrigation, domestic, and water power purposes [12].

3.4 Unclassified Storage Sites (Payette)

12HG 13

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: Unclassified

Township: 09N County: BOISE
Range: 08E Quad.: LOWMAN
HUC: 17050120

Water Source(s) South Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

12HG 21

Payette River Basin
Subbasin: MIDDLE FORK PAYETTE
Type: Unclassified

Township: 09N County: BOISE
Range: 04E Quad.: GARDEN VALLEY
HUC: 17050121

Water Source(s) Payette River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

12HG 22

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Unclassified

Township: 09N County: BOISE
Range: 03E Quad.: BANKS
HUC: 17050123

Water Source(s) Payette River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12], Water Resources Research Institute, 1970 [21]

Estimated Cost

Reason(s) Not Constructed Smiths Ferry-Scriver Creek complex preferred [12]

Summary Powerhead development (80 ft head).

12GH 23

Payette River Basin
Subbasin: MIDDLE FORK PAYETTE
Type: Unclassified

Township: 11N County: VALLEY
Range: 05E Quad.: SIXMILE POINT
HUC: 17050121

Water Source(s) Middle Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed High unit costs [12]

Summary Run-of-river powerhead development.

12GH 24

Payette River Basin
Subbasin: MIDDLE FORK PAYETTE
Type: Unclassified

Township: 10N County: BOISE
Range: 05E Quad.: PYLE CREEK
HUC: 17050121

Water Source(s) Middle Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed High unit costs [12]. Garden Valley site preferred [12]

Summary Possible 100-ft powerhead development.

Banks

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Unclassified

Township: 09N County: BOISE
Range: 03E Quad.: PACKER JOHN
MOUNTAIN
HUC: 17050123

Water Source(s) North Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17], Water Resources Research Institute, 1970 [21]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Banks Lower (aka: 12HG 6)

Payette River Basin
Subbasin: PAYETTE
Type: Unclassified

Township: 08N County: BOISE
Range: 03E Quad.: DRY BUCK VALLEY
HUC: 17050122

Water Source(s) North Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17], Water Resources Research Institute, 1970 [21], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed Infrastructure (railroad, highways, and towns) [12]

Summary Potential powerhead (80 ft) development.

Banks to Horseshoe Bend

Payette River Basin
Subbasin: PAYETTE
Type: Unclassified

Township: 08N County: BOISE
Range: 03E Quad.: DRY BUCK VALLEY
HUC: 17050122

Water Source(s) Payette River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Big Creek

Payette River Basin
Subbasin: NORTH FORK PAYETTE
Type: Unclassified

Township: 15N County: VALLEY
Range: 05E Quad.: ORO MOUNTAIN
HUC: 17050123

Water Source(s)

Reservoir Cap. (AF) 20,000 [18]

Documentation Idaho Department of Water Resources, 1976 [18]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Big Falls

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: County:
Range: Quad.:
HUC:

Water Source(s) South Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Black Bear

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: County:
Range: Quad.:
HUC:

Water Source(s) South Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Box Creek

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: County:
Range: Quad.:
HUC:

Water Source(s) Box Creek, North Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Brush Creek

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: County:
Range: Quad.:
HUC:

Water Source(s) North Fork Payette River, Brush Creek

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Clear Creek

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: Unclassified

Township: 10N County: BOISE
Range: 08E Quad.: MILLER MOUNTAIN WEST
HUC: 17050120

Water Source(s) Clear Creek

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20]

Estimated Cost

Reason(s) Not Constructed

Summary Redevelop private plant at Lowman for more head (1,125 ft powerhead) with a 5-mile conduit from tailrace to powerhouse.

Dead Horse Creek

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: County:
Range: Quad.:
HUC:

Water Source(s) North Fork Payette River, Dead Horse Creek

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Deadwood Canyon

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: Unclassified

Township: 09N County: BOISE
Range: 07E Quad.: PINE FLAT
HUC: 17050120

Water Source(s) Deadwood River

Reservoir Cap. (AF)

Documentation Bureau of Reclamation, 1955 [11]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Deer Creek

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: County:
Range: Quad.:
HUC:

Water Source(s) Deer Creek, Payette River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Elk Lake

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: Unclassified

Township: 09N County: BOISE
Range: 11E Quad.: EDAHO MOUNTAIN
HUC: 17050120

Water Source(s) South Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], United States Geological Survey, 1965 [20]

Estimated Cost

*Reason(s) Not
Constructed*

Summary A diversion site planned for hydropower by constructing a 6-mile-long canal ending at a powerhouse.

Fall Creek

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: County:
Range: Quad.:
HUC:

Water Source(s) Fall Creek

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Ferncroft

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: County:
Range: Quad.:
HUC:

Water Source(s) North Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Fisher Creek

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: County:
Range: Quad.:
HUC:

Water Source(s) Fisher Creek , North Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Grimes Pass

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: County:
Range: Quad.:
HUC:

Water Source(s) South Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

High Valley

Payette River Basin
Subbasin: PAYETTE
Type: Unclassified

Township: 09N County: GEM
Range: 01E Quad.: OLA
HUC: 17050122

Water Source(s)

Reservoir Cap. (AF)

Documentation Bureau of Reclamation, 1955 [11]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Jug Creek

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: County:
Range: Quad.:
HUC:

Water Source(s) Jug Creek, Boulder Creek, North Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Louie Creek

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: County:
Range: Quad.:
HUC:

Water Source(s) Louis Creek, Boulder Creek, North Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

North Fork

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: County:
Range: Quad.:
HUC:

Water Source(s) North Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Paddock Valley

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: County:
Range: Quad.:
HUC:

Water Source(s) Little Willow Creek, Payette River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

Reason(s) Not Constructed

Summary No description available.

Pine Flat

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: County:
Range: Quad.:
HUC:

Water Source(s) South Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12], Idaho National Engineering and Environmental Laboratory, 1998 [17], Water Resources Research Institute, 1970 [21]

Estimated Cost

Reason(s) Not Constructed Garden Valley site preferred [12]

Summary Run-of-river powerhead development.

Round Valley Upper

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: County:
Range: Quad.:
HUC:

Water Source(s) North Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Shafer Creek

Payette River Basin
Subbasin: SOUTH FORK BOISE
Type: Unclassified

Township: 12N County:
Range: 04E Quad.:
HUC:

Water Source(s) Shafer Creek, Payette River

Reservoir Cap. (AF)

Documentation Idaho National Engineering and Environmental Laboratory, 1998 [17]

Estimated Cost

*Reason(s) Not
Constructed*

Summary No description available.

Ten Mile

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: Unclassified

Township: 10N County: BOISE
Range: 10E Quad.: EIGHTMILE MOUNTAIN
HUC: 17050120

Water Source(s) South Fork Payette River

Reservoir Cap. (AF)

Documentation Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation,
1961 [12]

Estimated Cost

*Reason(s) Not
Constructed* High unit cost [12]

Summary Possible power development.

Warm Spring (aka: Warm Springs)

Payette River Basin
Subbasin: SOUTH FORK PAYETTE
Type: Unclassified

Township: 09N County: BOISE
Range: 10E Quad.: EIGHTMILE MOUNTAIN
HUC: 17050120

Water Source(s) South Fork Payette River

Reservoir Cap. (AF)

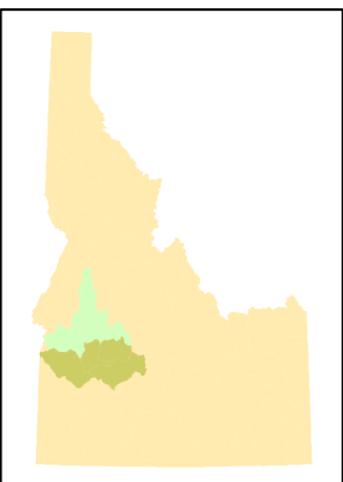
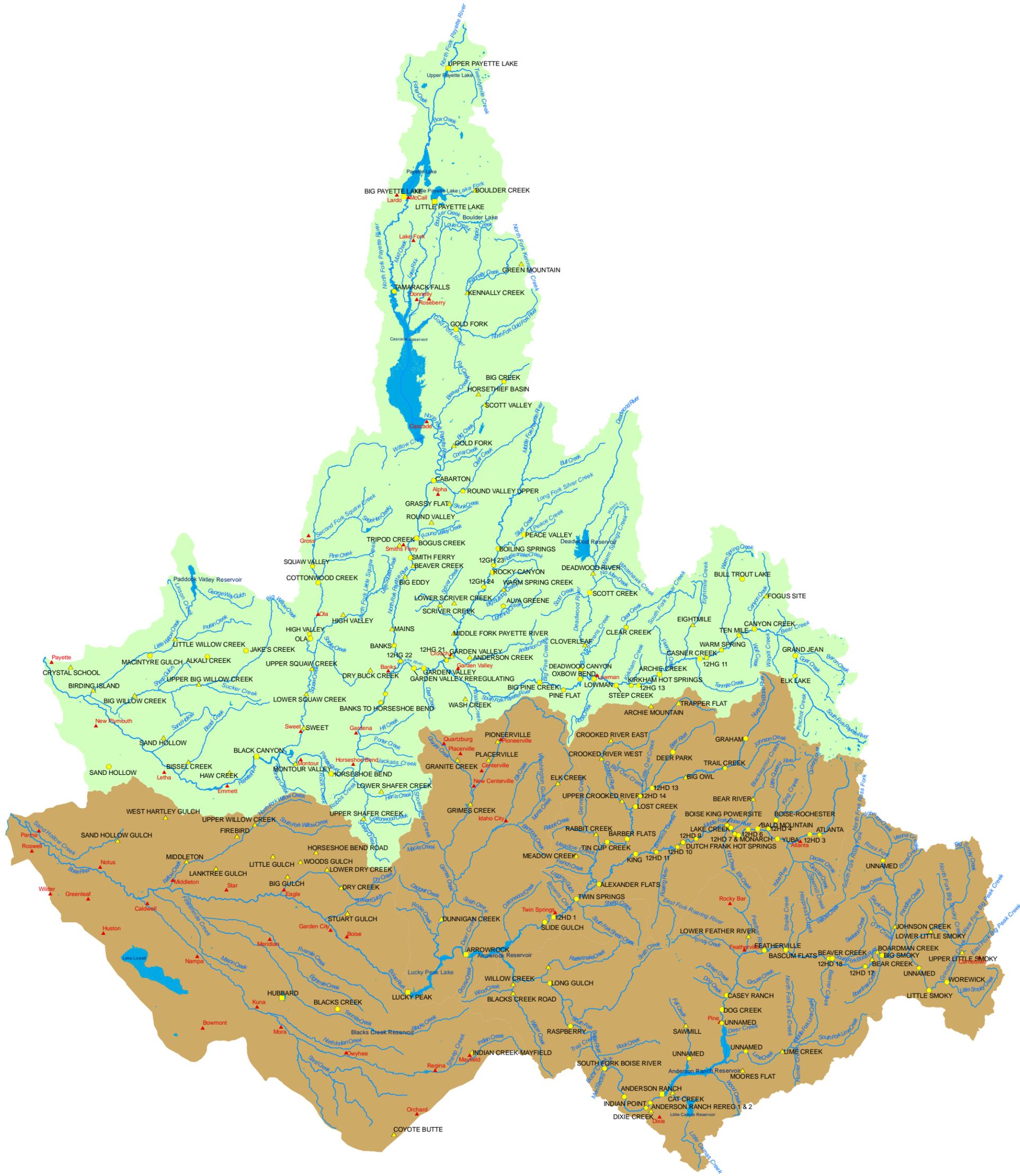
Documentation Idaho Water Resources Research Institute, 1980 [5], Bureau of Reclamation, 1961 [12]

Estimated Cost

Reason(s) Not Constructed High unit cost [12]

Summary Possible power development.

II. Boise and Payette River Map



Boise/Payette River Basin Water Storage Assessment Literature Review Report

<ul style="list-style-type: none"> ▲ City — Streams Boise River Basin Payette River Basin 	<ul style="list-style-type: none"> Existing ▲ Off-Stream Onstream Unclassified
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0 5 10 15 20 Miles

III. Bibliography

A literature review was conducted to identify and compile any existing, published, or unpublished information. The quality and quantity of the available information relative to this assessment and future storage appraisal studies was also evaluated. This bibliography reflects information that was available through October 2005.

The summary of documents that was reviewed includes the following:

- Title
- Reference with author or lead agency and year
- Format (i.e., hardcopy and/or electronic)
- Quantity and quality of data relevant to the study purpose category
 - Category 1 (C-1) indicates that there are many site recommendations and may include descriptions
 - Category 2 (C-2) indicates that the document provides few recommendations
 - Category 3 (C-3) indicates that there are no recommendations and/or is not relevant
- Document location
- Document purpose summary
- Applicability of document to the water storage assessment

The summary is organized by quantity and quality category (e.g., C-1, C-2, and C-3).

Tables 1 and 2 are matrix tables that show which documents reference individual potential storage sites.

Category 1 Documents (Most Useful Documents)

Progress Report Storage Possibilities—Payette Watershed

Reference

Bureau of Reclamation, 1938

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-1
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

The report examines several large storage facilities related to the Boise Project for the construction of approximately 2 million AF of storage within the Boise and Payette Basins.

Applicability

The document describes several large storage facilities and numerous interbasin transfers via tunnels and canals within the project area.

Supplemental Report on Twin Springs and Anderson Ranch Reservoir Sites

Reference

Bureau of Reclamation (J.C. Page), 1940

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-1
Hardcopy Document Location:	Bureau of Reclamation

Document Purpose

The document provides additional data for the Twin Springs and Anderson Ranch Reservoir Sites.

Applicability

The document provides location, capacity, flood control benefits, and construction cost information for the Twin Springs site.

Upper Snake River Basin, Volume I Summary Report

Reference

Bureau of Reclamation and U.S. Army Corps of Engineers, 1961

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-1
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

The document provides a detailed study assessing existing and proposed storage and flood control facilities within the upper Snake River Basin in Idaho, Oregon, Nevada, Utah, and Wyoming.

Applicability

The document provides good descriptions with cost estimates (circa 1961) of several proposals – Twin Springs, Gold Fork, Long and Round Valleys, Scriver

Creek, and Garden Valley. Also includes many proposed sites that were not accepted for additional analysis with a remark describing why they were dropped from further analysis.

Southwest Idaho Water Development Project

Reference

Bureau of Reclamation (S.L. Udall, F.E. Domity, H.T. Nelson), 1966

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-1
Hardcopy Document Location:	Bureau of Reclamation

Document Purpose

The document details the phases and overall plans for the SW Idaho Water Development Project (aka the Boise Project).

Applicability

The document details the numerous facilities and conveyance systems to support the project with details and cost estimates.

Snake River Basin Damsite Review

Reference

Bureau of Reclamation, 1992

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-1
Hardcopy Document Location:	

Document Purpose

The document summarizes new storage possibilities as a potential means for augmenting flushing flows for anadromous smolts within the Snake River Basin.

Applicability

The document provides details of numerous existing and potential sites and includes a detailed map with the original study entity. The document is an attachment to the *Snake River Basin Storage Appraisal*

Study.

Snake River Basin Storage Appraisal Study

Reference

Bureau of Reclamation and U.S. Army Corps of Engineers, 1994

Hardcopy:	
Electronic Copy:	X
Quantity and Quality of Information Category:	C-1
Hardcopy Document Location:	CD

Document Purpose

A new storage appraisal was conducted as part of the Northwest Power Planning Council (NWPCC), and other, as a means to support augmentation of flows as part of a comprehensive salmon management strategy.

Applicability

The document provides detailed descriptions of numerous sites within the Boise and Payette River

Basins. Refers to very few documents as a means to track origin of information.

Refill Probabilities of Arrowrock/Anderson Ranch Reservoirs and a Crest Raise Concept Study of Anderson Ranch

Reference

Bureau of Reclamation, 2005

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-1
Hardcopy Document Location:	Bureau of Reclamation

Document Purpose

The document was prepared to conduct a planning study of means of obtaining additional water due to drought and increase in demand.

Applicability

The document explores the hydrologic and economic feasibility of raising Anderson Ranch and Arrowrock Dams.

Potential Hydroelectric Energy Resources of ID

Reference

Idaho Department of Water Resources (C.C. Warnick, J.R. Filler, P.J. Vance), 1981

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-1
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

The document presents information and references to numerous reports and literature regarding hydropower sites within Idaho. Contains a summary of both existing and potential sites and some descriptive information on each site.

Applicability

The document is very useful with good general descriptions and includes comments on constraints

and economic feasibility.

DRAFT Flood Management in the Lower Boise River Valley

Reference

Idaho Department of Water Resources, 2004

Hardcopy:	
Electronic Copy:	
Quantity and Quality of Information Category:	C-1
Hardcopy Document Location:	Not Published

Document Purpose

The document furnishes information on the current flood peak reduction management practices being used for the Lower Boise River.

Applicability

The document presents storage sites within the Boise Basin that would provide flood control benefits.

U.S. Hydropower Resource Assessment for Idaho

Reference

Idaho National Engineering and Environmental Laboratory, 1998

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-1
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

This is a State of Idaho document supporting the 1989 National Energy Strategy for identifying sites to support expanding energy demand needs.

Applicability

The document identifies many undeveloped, project area sites proposed for potential future hydropower facility needs. Size of facility varies greatly.

Comprehensive State Water Plan Upper Boise River Basin

Reference

Idaho Water Resource Board, 1992

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-1
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

Upper Boise River Basin water plan to support the state water planning process.

Applicability

Provides a good description of the waterway designations within the basin. The Twin Springs project is identified as a potential storage site. Includes map of potential hydropower facilities.

Inventory of Off-stream Reservoir Sites in the Upper Snake River Basin

Reference

Idaho Water Resources Research Institute (L.A. Kirkland, C.C. Warnick, L.F. Heitz) and U.S. Army Corps of Engineers, 1979

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-1
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

The document serves as an appendix to “A Preliminary Appraisal of Off-stream Storage Sites for Meeting Water Storage Requirements in the Upper Snake River Basin.”

Applicability

The document provides a list of proposed facilities, by drainage, of sites with capacity, and classifications of water availability, economic viability, and

impoundment impacts.

Pumped Storage in the Pacific Northwest

Reference

U.S. Army Corps of Engineers, 1976

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-1
Hardcopy Document Location:	Bureau of Reclamation

Document Purpose

The document provides a description and inventory of pumped storage opportunities within the Pacific Northwest.

Applicability

The document describes four sites within the Boise-Payette drainage areas.

A Preliminary Appraisal of Off-stream Reservoir Sites for Meeting Water Storage Requirements in the Upper Snake River Basin

Reference

U.S. Army Corps of Engineers and Idaho Water and Energy Resources Research Institute, 1981

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-1
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

An appraisal of a detailed inventory of off-stream reservoir sites to determine the value of the impoundment in meeting the storage needs within the Upper Snake River Basin.

Applicability

The document provides varying detail on numerous proposed sites within the Boise and Payette River Basins. It includes details on many proposed

facilities that include diversion and storage infrastructure details, facility size, and a summary of impacts from reservoir inundation.

Waterpower Resources of Idaho

Reference

United States Geological Survey (L.L. Young and J.L. Colbert), 1965

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-1
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

This report was prepared to aid in the classification of Federally owned lands valuable for the development of hydropower or for storage.

Applicability

The document provides details for several proposed sites within the project area and includes site-specific information.

Existing Reservoirs and Potential Reservoir Sites in Idaho Volume I, Volume II Descriptions and Tabular Information

Reference

Water Resources Research Institute (J.J. Peebles), 1970

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-1
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

Updated information from the document, "Methodology for evaluating potential surface-water reservoir sites in Idaho – Progress report for the period of September 1, 1968 to September 30, 1969."

Applicability

The document is an important source document for the project. It contains an extensive table of potential sites investigated by the USACE, USGS, and

Reclamation.

Category 2 Documents (Moderately Useful Documents)

Boise River Resource Management and Master Plan

Reference

Boise Parks and Recreation, 1999

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

Comprehensive management plan for recreation and stream and riparian improvements within and along the Boise River between Barber Dam and Glenwood Avenue.

Applicability

The document is focused on recreation, habitat, and water quality improvements within the City of Boise.

Water Management Opportunities within the Snake River Basin

Reference

Bookman-Edmonston Engineering, 1994

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Bureau of Reclamation

Document Purpose

Support document to the NWPPC to identify additional measures to provide flows for the Salmon Recovery Program (1992).

Applicability

The document describes various methods that may result in additional basin water – vegetation removal, weather modification, land fallowing, and operational changes. Operational changes include

enlarging the New York Canal and Lake Lowell.

Upper Snake River Basin Special Report: Irrigation and Associated Development

Reference

Bureau of Reclamation, 1955

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Bureau of Reclamation

Document Purpose

This report describes existing and potential storage facilities above the Powder River and within the Snake River Basin.

Applicability

The document describes water supply opportunities and potential storage facilities. Examples include raising Black Canyon Dam and developing additional off-stream storage facilities.

Southwest Idaho Water Development Project

Reference

Bureau of Reclamation, 1966

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

One of the many support document describing and detailing the alternatives for the larger Southwest Idaho Water Development Project (Boise Project).

Applicability

The document is one in a long line of documents that details the proposed plans to build a number of facilities that begin within the North Fork of the Payette Basin and include a dam, tunnels, canals, etc.

and end within Lucky Peak Reservoir.

New York Canal Bicycle Path/Hubbard Reservoir Recreation Analysis

Reference

Bureau of Reclamation, 1979

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Bureau of Reclamation

Document Purpose

This document describes the potential for a bike path along the New York Canal and fish and wildlife development opportunities within Hubbard Reservoir.

Applicability

Hubbard Reservoir serves as emergency short-term storage for the New York Canal as well as for flood control.

Arrowrock Reservoir 1997 Sedimentation Survey

Reference

Bureau of Reclamation, 1997

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Bureau of Reclamation

Document Purpose

The report describes the reservoir topography, computes capacity, and estimates depletion caused by sedimentation.

Applicability

The report describes the capacity losses due to sedimentation and presents an annual loss of 235.4 AF per year.

Arrowrock Reservoir Sediment Quantification and Transport Study Report

Reference

Bureau of Reclamation, 1999

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Bureau of Reclamation

Document Purpose

The document examines the sediment impacts of flushing Arrowrock Reservoir on Lucky Peak operations.

Applicability

The document is focused on the impacts to Lucky Peak and offers no additional recommendations.

Potential Sites for Small Reservoirs Technical Studies Report No. 2

Reference

Idaho Department of Water Resources (K.D. Hessing), 1976

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

The document identified additional small storage facilities (20,000 to 80,000 AF) recommendations within various Idaho basins.

Applicability

Four facilities within the North Fork Payette Drainage Area above Smiths Ferry were identified.

Inventory of Potential Hydropower Sites in Idaho

Reference

Idaho Department of Water Resources (F. Eisenbarth), 1980

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

This document provides a summary inventory of potential hydropower facilities across the state.

Applicability

Provides good information on potential hydropower facilities in the study area.

Domestic, Commercial, Municipal, and Industrial (DCMI) Water Demand Assessment and Forecast in Ada and Canyon Counties

Reference

Idaho Department of Water Resources, 2001

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

The document assesses the current DCMI water-use conditions and project future needs.

Applicability

The study estimates DCMI water demand for the years 2000 to 2025 using data from 1997 and 1998 as the baseline.

Lower Boise River Basin Comprehensive Plan-Draft

Reference

Idaho Department of Water Resources, 2001

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

The document provides information regarding the initiation of the Lower Boise River Basin planning process that includes draft goals, issues, and problem statements for the comprehensive plan.

Applicability

The document provides valuable supportive information on issues related to water needs within the Basin.

Role of Water Storage in Meeting Future Needs

Reference

Bureau of Reclamation (J. Gregg), 2004

Hardcopy:	
Electronic Copy:	X
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Internet

Document Purpose

The document serves as a presentation for meeting water needs in the Snake River Basin.

www.idwr.state.id.us/Committee/Treasure%20Vall/ey/Gregg%20Presentation%207-20-04.ppt

Applicability

Bullet points for meeting future water needs. Includes Anderson Ranch Dam raise, Lake Lowell raise, pumping from the Snake River, and identifies

two potential storage sites – Moores Hollow and Twin Springs.

Comprehensive State Water Plan: South Fork Boise River Sub-Basin

Reference

Idaho Water Resource Board, 1990

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

The Comprehensive State Water Plan supports the state water planning process.

Applicability

This document provides information to support planning within the South Fork Boise River. Includes use designations for water bodies and potential hydropower sites within the drainage (although maps and appendix are missing). Information

suggests potential site data were adopted from the Southwest Idaho Water Development Project (BOR, 1966).

Idaho State Water Plan

Reference

Idaho Water Resource Board, 1996

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

The document provides a guide to the development, management, and use of the state's water and related resources.

Applicability

The document provides state use designations as well as a limited number of potential reservoir sites.

Comprehensive State Water Plan Payette River Basin

Reference

Idaho Water Resource Board, 1999

Hardcopy:	X
Electronic Copy:	X
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

Comprehensive State Water Plan to support the state water planning process.

Applicability

Document identifies several potential reservoir sites with varying information on size, use, and location. Sites were adopted from IDWR 1981 (Potential Hydroelectric Resources in Idaho).

Black Canyon Reservoir Emmett, Idaho, Sedimentation Survey

Reference

Soil Conservation Service and Bureau of Reclamation, 1971

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

The document describes the results of the sediment survey conducted within the reservoir to estimate sediment load.

Applicability

The document does not provide recommendations for storage facilities other than a cursory description of the document reservoir.

Lower Boise River and Tributaries, ID—Reconnaissance Study

Reference

U.S. Army Corps of Engineers, 1995

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

The document reviews various water resource problems, needs, and opportunities within the lower Boise Basin.

Applicability

The document provides important information and recommended several alternatives that include: 1) development of adjacent wetlands for floodwater storage; 2) channel widening, land

purchasing/relocation, and restoration; 3) Lucky Peak dead storage conversion; 4) new storage facilities; 5) channel clearing and maintenance; and 6) floodplain regulation and management.

Appendix Survey Report Boise River Watershed

Reference

U.S. Department of Agriculture, 1950

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

Appendix to flood control survey report on program of runoff and water flow retardation and soil erosion prevention in the Boise River watershed, Idaho.

Applicability

Recommended numerous watershed management options that include land treatments and acquisitions, storm water channels, and small-scale storage detention facilities.

Feasibility Geologic Report, Anderson Ranch Dam Reregulation Damsites No. 1 & 2, Boise River Project, ID

Reference

Water and Power Resources Service, 1980

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Bureau of Reclamation

Document Purpose

Feasibility investigation of two re-regulation damsites downstream of Anderson Ranch Reservoir.

Applicability

Describes two proposed facilities immediately downstream of Anderson Ranch with capacities of more than 700 AF each.

Boise River Flood Control Proposal for Immediate Post-War Program

Reference

WM.E. Welsh (Watermaster), 1944

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-2
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

The report identified a need for additional flood control following the 1943 floods within the lower Boise River.

Applicability

The document recommended additional storage facilities be constructed within the Middle and North Fork of the Boise Rivers and potentially within the Mores Creek drainage.

Category 3 Documents (Least Useful Documents)

Sedimentation Survey Black Canyon Reservoir Emmett, Idaho

Reference

Bureau of Reclamation and Soil Conservation Service, 1973

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Bureau of Reclamation

Document Purpose

This document presents the results of the sediment survey made jointly by the SCS and Reclamation during the period April to June 1971 and to introduce any other new significant information available.

Applicability

This document describes the estimated rate of sediment deposition in the Black Canyon Reservoir.

Unity Reservoir 1991 Sedimentation Survey

Reference

Bureau of Reclamation, 1991

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Bureau of Reclamation

Document Purpose

The document describes the results of the sediment survey conducted within the reservoir to estimate sediment load.

Applicability

The document addresses areas outside of the project area and not applicable.

Snake River Resources Review (SR3) Blueprint

Reference

Bureau of Reclamation, 1996

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Bureau of Reclamation

Document Purpose

The document is a framework for the foundation and design of the Snake River Resource Review. This review is designed to provide decision-makers with information for reservoir operations.

Applicability

The document provides little in the way of additional storage needs within the project area.

Black Canyon Reservoir Normal Water Surface Increase Study

Reference

Bureau of Reclamation, 1997

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Bureau of Reclamation

Document Purpose

The document describes the need to raise the Black Canyon Reservoir 6 inches.

Applicability

The document recommends a 6-inch raise for an additional capacity of 500 AF at a total cost of \$177,000 (circa 1997).

Combined Report: 1-A Description of BOR System Operations above Milner Dam 1997; 2-A Description of BOR System Operations of the Boise and Payette Rivers 1997; 3-A Description of Miscellaneous Tributaries of the Snake River 1997

Reference

Bureau of Reclamation, 1997

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Bureau of Reclamation

Document Purpose

Combined reports describing storage facility operations above Milner Dam, within the Boise and Payette Basins, and miscellaneous tributaries of the Snake River.

Applicability

This reports describe operations without additional storage recommendations.

Cascade Reservoir 1995 Sedimentation Survey

Reference

Bureau of Reclamation, 1998

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Bureau of Reclamation

Document Purpose

The report describes the reservoir topography, computes capacity, and estimates depletion caused by sedimentation.

Applicability

The report describes the revised operational range of the reservoir.

Snake River Decision Support System

Reference

Bureau of Reclamation, 1999

Hardcopy:	
Electronic Copy:	X
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Bureau of Reclamation

Document Purpose

The document presents a decision support system for managing reservoir and storage systems within the Snake River.

Applicability

The document is a technical management document describing the overall electronic support system.

Lake Lowell Water Quality Management Appraisal Study

Reference

Bureau of Reclamation, 2001

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

This document examined water quality within Lake Lowell.

Applicability

This document focuses on water quality within the reservoir and related canal systems.

Treasure Valley's Water Future-Summit Summary

Reference

Community Planning Association of Southwest Idaho, Idaho Department of Water Resources, and Idaho Water Resources Research Institute, 2002
<http://boise.uidaho.edu/documents/tvwsexecutivesummary.pdf&pid=33494&doc=1>

Hardcopy:	
Electronic Copy:	X
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Internet

Document Purpose

This draft summary is a report of summit issues, goals, and recommendations.

Applicability

This document provides general recommendations to meet the needs of growth and development within the Treasure Valley.

Draft South Fork Boise River Basin Water Plan Report

Reference

Idaho Department of Water Resources (V.G. King), 1990

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-3
Document Location:	Idaho Department of Water Resources

Document Purpose

South Fork Boise River Basin Water Plan to support the state water planning process.

Applicability

This document provides useful baseline description information as well as sites proposed as hydroelectric facilities. It also includes designated use descriptions and recommendations for several river segments within the Basin.

The Treasure of Our Valley: A Conservation Blueprint for the Boise River

Reference

Idaho Rivers United (IRU), Color Flyer

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Idaho Rivers United

Document Purpose

This document is a summary pamphlet of river conservation goals and a description of conditions with recommendations for better water management.

Applicability

This document recommends additional wetlands for flood management.

Idaho Hydroelectric Potential Appendix IV: Southwest Idaho Basins Theoretical Potential in Streams and Potential at Existing Dams and Proposed Sites

Reference

Idaho Water Resources Research Institute (L.F. Heitz, C.C. Warnick, J.S. Gladwell), 1980

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

The study evaluated the theoretical potential for small hydroelectric development in Idaho.

Applicability

The report focuses on existing dams and irrigation canals and the capability of those facilities for generating electricity.

Boise, Payette, Weiser Subbasin Management Plan

Reference

Northwest Power Conservation Council, 2004

<http://www.nwcouncil.org/fw/subbasinplanning/boise/plan/>

Hardcopy:	
Electronic Copy:	X
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Internet

Document Purpose

The plan was developed as part of the Northwest Power and Conservation Council's Fish and Wildlife Program to direct funding to fish and wildlife projects within the basins.

Applicability

Primarily a resource management document describing operational recommendations of existing facilities.

Proposed Program of Development of Columbia Drainage Basin: Emergency and Immediate Post-War Projects

Reference

Northwest States Development Association, 1943

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

The document describes post-war storage facility projects for economic development.

Applicability

The document provides brief descriptions of Anderson Ranch, Cascade Reservoir, Black Canyon Pumping Project, and the Mountain Home Project.

Needed Water Resources Programs in the Snake River Basin to Swan Falls Study Committee of the Legislative Council State of Idaho

Reference

Snake River Technical Advisory Committee, 1983

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

Technical committee report to the legislature on hydrologic recommendations above Swan Falls.

Applicability

The document is limited to the area above Swan Falls.

Review of Survey Report—Boise River, Idaho

Reference

U.S. Engineer Office, 1946

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

The document is a support of the construction of the Lucky Peak Dam facility and the installation of the hydropower facility on Arrowrock Reservoir.

Applicability

The document is limited to a description of the need to build Lucky Peak and add hydropower to Arrowrock Reservoir.

Hydrology Support Study for a Case Study of Federal Expenditures on a Water and Related Land Resource Project

Reference

Water Resource Board, Idaho Water Resources Research Institute, 1974

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

This report was prepared to present hydrologic information, reservoir operation, and irrigation use tied to the Boise Project.

Applicability

Basically, the document is a summary of the 1994 Idaho Water Resource Board, Idaho Water Resources Research Institute (C.C. Warnick, C.E. Brockway).

Methodology for Evaluating Potential Surface-Water Reservoir Sites in Idaho

Reference

Water Resources Research Institute (J.J. Peebles), 1969

Hardcopy:	X
Electronic Copy:	
Quantity and Quality of Information Category:	C-3
Hardcopy Document Location:	Idaho Department of Water Resources

Document Purpose

The document provides documentation for the methods used to identify facilities to supply water within Idaho to support the state water plan.

Applicability

The document is primarily a methodology document with no site recommendations.

TABLE 1
CROSS-REFERENCE LIST FOR POTENTIAL SITES IN BOISE RIVER BASIN

Potential Storage Site Boise River Basin	Pumped Storage in the Pacific Northwest, an Inventory U.S. Army Corps of Engineers, 1976	A Preliminary Appraisal of Off-stream Reservoir Sites for Meeting Water Storage Requirements in the Upper Snake River Basin U.S. Army Corps of Engineers and Idaho Water & Energy Resources Research Institute, 1981	Lower Boise River and Tributaries, ID—Reconnaissance— Study U.S. Army Corps of Engineers, 1995	Progress Report Storage Possibilities Payette Watershed Bureau of Reclamation, 1938	Supplemental Report on Twin Springs and Anderson Ranch Reservoir Sites Bureau of Reclamation, 1940	USBR Special Report Bureau of Reclamation, 1955	Upper Snake River Basin Volume I Summary Report Bureau of Reclamation and U.S. Army Corps of Engineers, 1961	New York Canal Bicycle Path/Hubbard Reservoir Recreation Analysis Bureau of Reclamation, 1979	Snake River Basin Damsite Review Bureau of Reclamation, 1992	Snake River Basin Storage Appraisal Study Bureau of Reclamation and U.S. Army Corps of Engineers, 1994	Refill Probabilities of Arrowrock/Anderson Ranch Reservoirs and a Crest Raise Concept Study of Anderson Ranch Bureau of Reclamation, 2005	U.S. Hydropower Resource Assessment for Idaho Idaho National Engineering and Environmental Laboratory, 1988	Potential Sites for Small Reservoirs Technical Studies Report No. 2 Idaho Department of Water Resources, 1976	DRAFT Flood Management in the Lower Boise River Valley Idaho Department of Water Resources, 2004	Idaho State Water Plan Idaho Water Resources Board, 1996	Inventory of Off-stream Reservoir Sites in the Upper Snake River Basin Idaho Water Resources Research Institute, 1979	Theoretical Potential in Streams and Potential at Existing Dams and Proposed Sites Idaho Water Resources Research Institute, 1980	DRAFT South Fork Boise River Basin Water Plan Report Idaho Department of Water Resources, 1990	Existing Reservoirs and Potential Reservoir Sites in Idaho Volume I Descriptions and Tabular Information Idaho Water Resources Research Institute, 1970	Waterpower Resources of Idaho United States Geological Survey, 1965	Feasibility Geologic Report, Anderson Ranch Dam Reregulation Damsites No. 1&2, Boise River Project, ID Water and Power Resources Service, 1980	
12HD 1							X										X					
12HD 10																	X					
12HD 11							X										X					
12HD 13							X										X			X		
12HD 14							X										X			X		
12HD 15							X										X			X		
12HD 17							X										X			X		
12HD 18																	X			X		
12HD 3																	X					
12HD 4																	X					
12HD 6																	X					
12HD 7																	X					
12HD 9																	X					
Alexander Flats							X		X	X							X				X	
Alva Greene												X										
Anderson Ranch											X	X										
Anderson Ranch Rereg No 1																						X
Anderson Ranch Rereg No 2																						X
Archie Mountain		X							X	X												
Arrowrock						X					X	X		X								
Atlanta																	X					
Bald Mountain																	X					

Potential Storage Site Boise River Basin	Pumped Storage in the Pacific Northwest, an Inventory U.S. Army Corps of Engineers, 1976	A Preliminary Appraisal of Off-stream Reservoir Sites for Meeting Water Storage Requirements in the Upper Snake River Basin U.S. Army Corps of Engineers and Idaho Water & Energy Resources Research Institute, 1981	Lower Boise River and Tributaries, ID—Reconnaissance— Study U.S. Army Corps of Engineers, 1995	Progress Report Storage Possibilities Payette Watershed Bureau of Reclamation, 1938	Supplemental Report on Twin Springs and Anderson Ranch Reservoir Sites Bureau of Reclamation, 1940	USBR Special Report Bureau of Reclamation, 1955	Upper Snake River Basin Volume I Summary Report Bureau of Reclamation and U.S. Army Corps of Engineers, 1961	New York Canal Bicycle Path/Hubbard Reservoir Recreation Analysis Bureau of Reclamation, 1979	Snake River Basin Damsite Review Bureau of Reclamation, 1992	Snake River Basin Storage Appraisal Study Bureau of Reclamation and U.S. Army Corps of Engineers, 1994	Refill Probabilities of Arrowrock/Anderson Ranch Reservoirs and a Crest Raise Concept Study of Anderson Ranch Bureau of Reclamation, 2005	U.S. Hydropower Resource Assessment for Idaho Idaho National Engineering and Environmental Laboratory, 1988	Potential Sites for Small Reservoirs Technical Studies Report No. 2 Idaho Department of Water Resources, 1976	DRAFT Flood Management in the Lower Boise River Valley Idaho Department of Water Resources, 2004	Idaho State Water Plan Idaho Water Resources Board, 1996	Inventory of Off-stream Reservoir Sites in the Upper Snake River Basin Idaho Water Resources Research Institute, 1979	Theoretical Potential in Streams and Potential at Existing Dams and Proposed Sites Idaho Water Resources Research Institute, 1980	DRAFT South Fork Boise River Basin Water Plan Report Idaho Department of Water Resources, 1990	Existing Reservoirs and Potential Reservoir Sites in Idaho Volume I Descriptions and Tabular Information Idaho Water Resources Research Institute, 1970	Waterpower Resources of Idaho United States Geological Survey, 1965	Feasibility Geologic Report, Anderson Ranch Dam Reregulation Damsites No. 1&2, Boise River Project, ID Water and Power Resources Service, 1980	
Barber Flats							X		X	X							X					
Bascum Flats							X		X	X							X					
Bear River		X							X	X				X		X						
Big Gulch		X							X	X						X						
Big Owl																	X					
Big Smoky						X	X		X	X							X			X		
Blacks Creek Road		X							X	X												
Blacks Lake												X										
Boardman Creek												X					X					
Boise King Powersite																	X					
Casey Ranch							X		X	X										X		
Cat Creek		X							X	X						X						
Chadre		X																				
Conswello		X																				
Coyote Butte		X							X	X				X								
Crooked River East		X							X	X												
Crooked River West		X							X	X												
Dixie Creek		X							X	X						X						
Dog Creek						X	X		X	X												
Dry Creek		X				X	X		X	X				X		X				X		
Dunnigan Creek		X							X	X												
Elk Creek		X							X	X												
Featherville									X	X							X			X		
Firebird		X							X	X												
Graham							X		X	X							X		X	X		
Granite Creek		X							X	X												
Grimes Creek		X							X										X			

Potential Storage Site	Pumped Storage in the Pacific Northwest, an Inventory U.S. Army Corps of Engineers, 1976	A Preliminary Appraisal of Off-stream Reservoir Sites for Meeting Water Storage Requirements in the Upper Snake River Basin U.S. Army Corps of Engineers and Idaho Water & Energy Resources Research Institute, 1981	Lower Boise River and Tributaries, ID—Reconnaissance— Study U.S. Army Corps of Engineers, 1995	Progress Report Storage Possibilities Payette Watershed Bureau of Reclamation, 1938	Supplemental Report on Twin Springs and Anderson Ranch Reservoir Sites Bureau of Reclamation, 1940	USBR Special Report Bureau of Reclamation, 1955	Upper Snake River Basin Volume I Summary Report Bureau of Reclamation and U.S. Army Corps of Engineers, 1961	New York Canal Bicycle Path/Hubbard Reservoir Recreation Analysis Bureau of Reclamation, 1979	Snake River Basin Damsite Review Bureau of Reclamation, 1992	Snake River Basin Storage Appraisal Study Bureau of Reclamation and U.S. Army Corps of Engineers, 1994	Refill Probabilities of Arrowrock/Anderson Ranch Reservoirs and a Crest Raise Concept Study of Anderson Ranch Bureau of Reclamation, 2005	U.S. Hydropower Resource Assessment for Idaho Idaho National Engineering and Environmental Laboratory, 1988	Potential Sites for Small Reservoirs Technical Studies Report No. 2 Idaho Department of Water Resources, 1976	DRAFT Flood Management in the Lower Boise River Valley Idaho Department of Water Resources, 2004	Idaho State Water Plan Idaho Water Resources Board, 1996	Inventory of Off-stream Reservoir Sites in the Upper Snake River Basin Idaho Water Resources Research Institute, 1979	Theoretical Potential in Streams and Potential at Existing Dams and Proposed Sites Idaho Water Resources Research Institute, 1980	DRAFT South Fork Boise River Basin Water Plan Report Idaho Department of Water Resources, 1990	Existing Reservoirs and Potential Reservoir Sites in Idaho Volume I Descriptions and Tabular Information Idaho Water Resources Research Institute, 1970	Waterpower Resources of Idaho United States Geological Survey, 1965	Feasibility Geologic Report, Anderson Ranch Dam Reregulation Damsites No. 1&2, Boise River Project, ID Water and Power Resources Service, 1980	
GWP 13												X										
Highplains Estates																						
Horseshoe Bend Road		X							X	X												
Hubbard								X														
Indian Creek-Mayfield		X							X	X												
Indian Point						X			X	X											X	
Johnson Creek									X	X												
King									X	X										X		
King Site																					X	
Krall Mountain		X																				
Lanktree Gulch		X							X	X				X								
Lime Creek																					X	
Little Gulch		X							X	X				X								
Little Smoky							X		X	X										X		
Long Gulch																				X	X	
Lost Creek																				X		
Lower Crooked River		X																				
Lower Dry Creek		X							X	X												
Lower Feather River		X							X	X												
Lower Little Smoky Creek		X																				
Lucky Peak			X											X								
Magello		X																				
Meadow Creek		X							X	X												
Middleton		X							X	X												
Moores Flat		X							X	X						X						
North Fork Boise River												X										

Potential Storage Site Boise River Basin	Pumped Storage in the Pacific Northwest, an Inventory U.S. Army Corps of Engineers, 1976	A Preliminary Appraisal of Off-stream Reservoir Sites for Meeting Water Storage Requirements in the Upper Snake River Basin U.S. Army Corps of Engineers and Idaho Water & Energy Resources Research Institute, 1981	Lower Boise River and Tributaries, ID—Reconnaissance— Study U.S. Army Corps of Engineers, 1995	Progress Report Storage Possibilities Payette Watershed Bureau of Reclamation, 1938	Supplemental Report on Twin Springs and Anderson Ranch Reservoir Sites Bureau of Reclamation, 1940	USBR Special Report Bureau of Reclamation, 1955	Upper Snake River Basin Volume I Summary Report Bureau of Reclamation and U.S. Army Corps of Engineers, 1961	New York Canal Bicycle Path/Hubbard Reservoir Recreation Analysis Bureau of Reclamation, 1979	Snake River Basin Damsite Review Bureau of Reclamation, 1992	Snake River Basin Storage Appraisal Study Bureau of Reclamation and U.S. Army Corps of Engineers, 1994	Refill Probabilities of Arrowrock/Anderson Ranch Reservoirs and a Crest Raise Concept Study of Anderson Ranch Bureau of Reclamation, 2005	U.S. Hydropower Resource Assessment for Idaho Idaho National Engineering and Environmental Laboratory, 1988	Potential Sites for Small Reservoirs Technical Studies Report No. 2 Idaho Department of Water Resources, 1976	DRAFT Flood Management in the Lower Boise River Valley Idaho Department of Water Resources, 2004	Idaho State Water Plan Idaho Water Resources Board, 1996	Inventory of Off-stream Reservoir Sites in the Upper Snake River Basin Idaho Water Resources Research Institute, 1979	Theoretical Potential in Streams and Potential at Existing Dams and Proposed Sites Idaho Water Resources Research Institute, 1980	DRAFT South Fork Boise River Basin Water Plan Report Idaho Department of Water Resources, 1990	Existing Reservoirs and Potential Reservoir Sites in Idaho Volume I Descriptions and Tabular Information Idaho Water Resources Research Institute, 1970	Waterpower Resources of Idaho United States Geological Survey, 1965	Feasibility Geologic Report, Anderson Ranch Dam Reregulation Damsites No. 1&2, Boise River Project, ID Water and Power Resources Service, 1980	
Pioneerville		X							X	X												
Placerville		X							X	X												
Rabbit Creek		X							X	X												
Raspberry							X		X	X							X			X	X	
Rattlesnake Creek	X																					
Sand Hollow Gulch		X							X	X				X		X						
Sawmill																	X				X	
Sebree		X												X								
Slide Gulch												X					X			X	X	
South Fork Boise River							X		X	X												
Stuart Gulch		X							X	X												
Trail Creek																	X					
Trapper Flat		X							X	X												
Trinity Mountain		X																				
Twin Springs		X		X	X	X	X		X	X		X		X	X		X		X	X	X	
Unnamed																			X			
Unnamed																			X			
Unnamed																			X			
Unnamed																			X			
Unnamed																			X			
Upper Crooked River		X							X	X												
Upper Feather River		X																				
Upper Little Smoky Creek		X																				
Upper Willow Creek		X							X	X												
West Hartley Gulch		X							X	X												
Willow Creek																X						

Potential Storage Site	Boise River Basin	Pumped Storage in the Pacific Northwest, an Inventory U.S. Army Corps of Engineers, 1976	A Preliminary Appraisal of Off-stream Reservoir Sites for Meeting Water Storage Requirements in the Upper Snake River Basin U.S. Army Corps of Engineers and Idaho Water & Energy Resources Research Institute, 1981	Lower Boise River and Tributaries, ID—Reconnaissance— Study U.S. Army Corps of Engineers, 1995	Progress Report Storage Possibilities Payette Watershed Bureau of Reclamation, 1938	Supplemental Report on Twin Springs and Anderson Ranch Reservoir Sites Bureau of Reclamation, 1940	USBR Special Report Bureau of Reclamation, 1955	Upper Snake River Basin Volume I Summary Report Bureau of Reclamation and U.S. Army Corps of Engineers, 1961	New York Canal Bicycle Path/Hubbard Reservoir Recreation Analysis Bureau of Reclamation, 1979	Snake River Basin Damsite Review Bureau of Reclamation, 1992	Snake River Basin Storage Appraisal Study Bureau of Reclamation and U.S. Army Corps of Engineers, 1994	Refill Probabilities of Arrowrock/Anderson Ranch Reservoirs and a Crest Raise Concept Study of Anderson Ranch Bureau of Reclamation, 2005	U.S. Hydropower Resource Assessment for Idaho Idaho National Engineering and Environmental Laboratory, 1988	Potential Sites for Small Reservoirs Technical Studies Report No. 2 Idaho Department of Water Resources, 1976	DRAFT Flood Management in the Lower Boise River Valley Idaho Department of Water Resources, 2004	Idaho State Water Plan Idaho Water Resources Board, 1996	Inventory of Off-stream Reservoir Sites in the Upper Snake River Basin Idaho Water Resources Research Institute, 1979	Theoretical Potential in Streams and Potential at Existing Dams and Proposed Sites Idaho Water Resources Research Institute, 1980	DRAFT South Fork Boise River Basin Water Plan Report Idaho Department of Water Resources, 1990	Existing Reservoirs and Potential Reservoir Sites in Idaho Volume I Descriptions and Tabular Information Idaho Water Resources Research Institute, 1970	Waterpower Resources of Idaho United States Geological Survey, 1965	Feasibility Geologic Report, Anderson Ranch Dam Reregulation Damsites No. 1&2, Boise River Project, ID Water and Power Resources Service, 1980	
Woods Gulch			X							X	X												
Worewick								X		X	X										X		
Yuba										X	X							X					

TABLE 2
CROSS REFERENCE LIST FOR POTENTIAL SITES IN PAYETTE RIVER BASIN

Potential Storage Site Payette River Basin	Pumped Storage in the Pacific Northwest, an Inventory U.S. Army Corps of Engineers, 1976	A Preliminary Appraisal of Off-stream Reservoir Sites for Meeting Water Storage Requirements in the Upper Snake River Basin U.S. Army Corps of Engineers and Idaho Water & Energy Resources Research Institute, 1981	Progress Report Storage Possibilities Payette Watershed Bureau of Reclamation, 1938	Supplemental Report on Twin Springs and Anderson Ranch Reservoir Sites Bureau of Reclamation, 1940	USRB Special Report Bureau of Reclamation, 1955	Upper Snake River Basin Volume I Summary Report Bureau of Reclamation and U.S. Army Corps of Engineers, 1961	Snake River Basin Dam Site Review Bureau of Reclamation, 1992	Snake River Basin Storage Appraisal Study Bureau of Reclamation and U.S. Army Corps of Engineers, 1994	U.S. Hydropower Resource Assessment for Idaho Idaho National Engineering and Environmental Laboratory, 1988	Potential Sites for Small Reservoirs Technical Studies Report No. 2 Idaho Department of Water Resources, 1976	Idaho State Water Plan Idaho Water Resource Board, 1996	Comprehensive State Water Plan Payette River Basin Idaho Water Resource Board, 1999	Inventory of Off-stream Reservoir Sites in the Upper Snake River Basin Idaho Water Resources Research Institute, 1979	Theoretical Potential in Streams and Potential at Existing Dams and Proposed Sites Idaho Water Resources Research Institute, 1980	Southwest Idaho Water Development Project Bureau of Reclamation, 1966	Existing Reservoirs and Potential Reservoir Sites in Idaho Volume I Descriptions and Tabular Information Water Resources Research Institute, 1970	Waterpower Resources of Idaho United States Geological Survey, 1965
12GH 23						X								X			
12GH 24						X								X			
12HG 11														X			
12HG 13														X			
12HG 21														X			
12HG 22						X								X		X	
Anderson Creek		X					X	X									
Archie Creek							X	X						X			X
Banks									X							X	
Banks Lower									X							X	
Banks to Horseshoe Bend														X			
Beaver Creek						X								X			
Big Creek		X															
Big Creek										X							
Big Eddy														X			
Big Falls									X								
Big Pine Creek							X	X						X		X	X
Big Willow Creek		X					X	X					X				
Birding Island		X					X	X									
Bissel Creek		X					X	X			X	X					
Black Bear									X								
Black Canyon		X							X							X	
Bogus Creek							X	X	X	X	X		X				X

Potential Storage Site Payette River Basin	Pumped Storage in the Pacific Northwest, an Inventory U.S. Army Corps of Engineers, 1976	A Preliminary Appraisal of Off-stream Reservoir Sites for Meeting Water Storage Requirements in the Upper Snake River Basin U.S. Army Corps of Engineers and Idaho Water & Energy Resources Research Institute, 1981	Progress Report Storage Possibilities Payette Watershed Bureau of Reclamation, 1938	Supplemental Report on Twin Springs and Anderson Ranch Reservoir Sites Bureau of Reclamation, 1940	USRB Special Report Bureau of Reclamation, 1955	Upper Snake River Basin Volume I Summary Report Bureau of Reclamation and U.S. Army Corps of Engineers, 1961	Snake River Basin Damsite Review Bureau of Reclamation, 1992	Snake River Basin Storage Appraisal Study Bureau of Reclamation and U.S. Army Corps of Engineers, 1994	U.S. Hydropower Resource Assessment for Idaho Idaho National Engineering and Environmental Laboratory, 1988	Potential Sites for Small Reservoirs Technical Studies Report No. 2 Idaho Department of Water Resources, 1976	Idaho State Water Plan Idaho Water Resource Board, 1996	Comprehensive State Water Plan Payette River Basin Idaho Water Resource Board, 1999	Inventory of Off-stream Reservoir Sites in the Upper Snake River Basin Idaho Water Resources Research Institute, 1979	Theoretical Potential in Streams and Potential at Existing Dams and Proposed Sites Idaho Water Resources Research Institute, 1980	Southwest Idaho Water Development Project Bureau of Reclamation, 1966	Existing Reservoirs and Potential Reservoir Sites in Idaho Volume I Descriptions and Tabular Information Water Resources Research Institute, 1970	Waterpower Resources of Idaho United States Geological Survey, 1965	
Boiling Springs							X	X										X
Boulder Creek		X					X	X	X									
Box Creek									X									
Browns Pond		X							X									
Brush Creek									X									
Cabarton			X		X	X	X	X						X				
Canyon Creek							X	X						X		X	X	
Casner							X	X						X		X	X	
Clear Creek														X				X
Cloverleaf														X		X	X	
Cottonwood Creek							X	X								X		
Crystal School		X					X	X										
Dead Horse Creek									X									
Deadwood Canyon					X													
Deadwood River									X									
Deer Creek									X									
Dry Buck Creek	X	X					X	X										
Eightmile														X				X
Elk Lake														X				X
Fall Creek									X									
Ferncroft									X									
Fisher Creek									X									
Fogus Site														X				X
Garden Valley		X	X		X	X	X	X				X		X	X	X	X	X
Garden Valley														X		X		
Garden Valley Reregulating							X	X						X	X	X		X

Potential Storage Site Payette River Basin	Pumped Storage in the Pacific Northwest, an Inventory U.S. Army Corps of Engineers, 1976	A Preliminary Appraisal of Off-stream Reservoir Sites for Meeting Water Storage Requirements in the Upper Snake River Basin U.S. Army Corps of Engineers and Idaho Water & Energy Resources Research Institute, 1981	Progress Report Storage Possibilities Payette Watershed Bureau of Reclamation, 1938	Supplemental Report on Twin Springs and Anderson Ranch Reservoir Sites Bureau of Reclamation, 1940	USRB Special Report Bureau of Reclamation, 1955	Upper Snake River Basin Volume I Summary Report Bureau of Reclamation and U.S. Army Corps of Engineers, 1961	Snake River Basin Damsite Review Bureau of Reclamation, 1992	Snake River Basin Storage Appraisal Study Bureau of Reclamation and U.S. Army Corps of Engineers, 1994	U.S. Hydropower Resource Assessment for Idaho Idaho National Engineering and Environmental Laboratory, 1988	Potential Sites for Small Reservoirs Technical Studies Report No. 2 Idaho Department of Water Resources, 1976	Idaho State Water Plan Idaho Water Resource Board, 1996	Comprehensive State Water Plan Payette River Basin Idaho Water Resource Board, 1999	Inventory of Off-stream Reservoir Sites in the Upper Snake River Basin Idaho Water Resources Research Institute, 1979	Theoretical Potential in Streams and Potential at Existing Dams and Proposed Sites Idaho Water Resources Research Institute, 1980	Southwest Idaho Water Development Project Bureau of Reclamation, 1966	Existing Reservoirs and Potential Reservoir Sites in Idaho Volume I Descriptions and Tabular Information Water Resources Research Institute, 1970	Waterpower Resources of Idaho United States Geological Survey, 1965
Gold Fork			X			X				X	X	X					
Gold Fork		X															
Grand Jean			X			X	X	X				X				X	X
Grassy Flat		X					X	X									
Green Mountain		X					X	X									
Grimes Pass									X								
Haw Creek		X					X	X					X				
High Valley		X					X	X									
High Valley					X												
Horseshoe Bend							X	X						X		X	
Horsethief Basin		X					X	X									
Jug Creek									X								
Kennally Creek		X											X				
Kirkham Hot Springs																	
Little Payette Lake		X				X	X	X									
Little Willow Creek		X				X	X	X									
Louie Creek									X								
Lower Scriver Creek		X			X		X	X									X
Lower Shafer Creek		X					X	X									
Lower Squaw Creek		X					X	X									
Lowman																X	
Mains						X											
Middle Fork Payette River		X					X	X									
Montour Valley							X	X	X					X			
North Fork									X								
Ola			X			X	X	X						X		X	

Potential Storage Site Payette River Basin	Pumped Storage in the Pacific Northwest, an Inventory U.S. Army Corps of Engineers, 1976	A Preliminary Appraisal of Off-stream Reservoir Sites for Meeting Water Storage Requirements in the Upper Snake River Basin U.S. Army Corps of Engineers and Idaho Water & Energy Resources Research Institute, 1981	Progress Report Storage Possibilities Payette Watershed Bureau of Reclamation, 1938	Supplemental Report on Twin Springs and Anderson Ranch Reservoir Sites Bureau of Reclamation, 1940	USRB Special Report Bureau of Reclamation, 1955	Upper Snake River Basin Volume I Summary Report Bureau of Reclamation and U.S. Army Corps of Engineers, 1961	Snake River Basin Damsite Review Bureau of Reclamation, 1992	Snake River Basin Storage Appraisal Study Bureau of Reclamation and U.S. Army Corps of Engineers, 1994	U.S. Hydropower Resource Assessment for Idaho Idaho National Engineering and Environmental Laboratory, 1988	Potential Sites for Small Reservoirs Technical Studies Report No. 2 Idaho Department of Water Resources, 1976	Idaho State Water Plan Idaho Water Resource Board, 1996	Comprehensive State Water Plan Payette River Basin Idaho Water Resource Board, 1999	Inventory of Off-stream Reservoir Sites in the Upper Snake River Basin Idaho Water Resources Research Institute, 1979	Theoretical Potential in Streams and Potential at Existing Dams and Proposed Sites Idaho Water Resources Research Institute, 1980	Southwest Idaho Water Development Project Bureau of Reclamation, 1966	Existing Reservoirs and Potential Reservoir Sites in Idaho Volume I Descriptions and Tabular Information Water Resources Research Institute, 1970	Waterpower Resources of Idaho United States Geological Survey, 1965
Oxbow Bend							X	X	X					X		X	X
Paddock Valley									X								
Peace Valley						X						X		X			X
Pidgeon Flat		X															
Pine Flat						X			X					X		X	
Rocky Canyon							X	X						X			X
Round Valley		X	X				X	X									
Round Valley Upper									X								
Sand Hollow						X	X	X									
Sand Hollow		X					X	X				X					
Scott Creek														X		X	X
Scott Valley			X			X	X	X									
Scott Valley		X															
Scriver Creek					X				X						X		X
Shafer Creek									X								
Slick Rock		X															
Smith Ferry			X		X										X		
Squaw Valley					X												
Steep Creek														X		X	X
Sweet		X					X	X									
Tamarack Falls			X									X		X			
Ten Mile														X			
Tripod Creek		X					X	X					X				
Tranquil Basin	X																
Upper Big Willow Creek		X					X	X					X				
Upper Payette Lake		X	X		X	X	X	X		X		X		X			X

Potential Storage Site Payette River Basin	Pumped Storage in the Pacific Northwest, an Inventory U.S. Army Corps of Engineers, 1976	A Preliminary Appraisal of Off-stream Reservoir Sites for Meeting Water Storage Requirements in the Upper Snake River Basin U.S. Army Corps of Engineers and Idaho Water & Energy Resources Research Institute, 1981	Progress Report Storage Possibilities Payette Watershed Bureau of Reclamation, 1938	Supplemental Report on Twin Springs and Anderson Ranch Reservoir Sites Bureau of Reclamation, 1940	USRB Special Report Bureau of Reclamation, 1955	Upper Snake River Basin Volume I Summary Report Bureau of Reclamation and U.S. Army Corps of Engineers, 1961	Snake River Basin Damsite Review Bureau of Reclamation, 1992	Snake River Basin Storage Appraisal Study Bureau of Reclamation and U.S. Army Corps of Engineers, 1994	U.S. Hydropower Resource Assessment for Idaho Idaho National Engineering and Environmental Laboratory, 1988	Potential Sites for Small Reservoirs Technical Studies Report No. 2 Idaho Department of Water Resources, 1976	Idaho State Water Plan Idaho Water Resource Board, 1996	Comprehensive State Water Plan Payette River Basin Idaho Water Resource Board, 1999	Inventory of Off-stream Reservoir Sites in the Upper Snake River Basin Idaho Water Resources Research Institute, 1979	Theoretical Potential in Streams and Potential at Existing Dams and Proposed Sites Idaho Water Resources Research Institute, 1980	Southwest Idaho Water Development Project Bureau of Reclamation, 1966	Existing Reservoirs and Potential Reservoir Sites in Idaho Volume I Descriptions and Tabular Information Water Resources Research Institute, 1970	Waterpower Resources of Idaho United States Geological Survey, 1966
Upper Shafer Creek		X					X	X									
Upper Squaw Creek		X					X	X									
Warm Spring													X				
Warm Spring Creek		X					X	X									
Wash Creek		X					X	X									

IV. Reference Database

Relevant information from available literature has been input into a electronic database so that information can be used to easily search for relevant criteria (for example, how many on-stream potential sites are located in the Payette River Basin versus the Boise River Basin) and to facilitate the display of this information in a GIS-compatible format. The electronic version of this database has been transferred to Reclamation. This section contains a complete hardcopy print-out of the database so that readers that do not have access to the electronic version can examine the contents of the database.

Worksheet

DATABASE

FIELD

ID
 Dam Name
 Dam Name 2 (a.k.a)
 Dam Name 3 (a.k.a)
 Basin
 Type

 Water Source
 Water Source 2
 Water Source 3
 Literature Review References

Maximum Capacity Value
 Minimum Capacity Value
 Range of Capacity Values
 Reservoir Capacity Value by Literature Review Reference
 Estimated Cost Value by Literature Review Reference
 Reason Not Constructed
 Additional Reason Not Constructed
 Maximum Crest Water Surface Elevation
 Minimum Crest Water Surface Elevation
 TR
 Township
 Range
 County
 HUC No.
 Subbasin Name
 Quad. Name
 Location Unknown

Definitions

This worksheet contains all fields of the literature review database. A description of each field is provided below.

Site ID that is linked to GIS database
 Site name
 Site was referred to with multiple names - also known as (a.k.a)
 Site was referred to with multiple names - also known as (a.k.a)
 Payette or Boise basin
 Site was designated as Onstream, Off-Stream, or existing based on literature review reference. Sites are listed as "Unclassified" if they were not formally designated in the literature review reference.
 Water source and/or drainage way where the dam site is located.
 Additional water source when multiple sources were identified in literature review references.
 Additional water source when multiple sources were identified in literature review references.
 Columns J thru AJ contain references for each site to the literature review reference that provided data. Row 2 contains the author/date that can be cross-referenced to the Bibliography in Section III. If a site was identified in the document it is identified with an "X" in rows 3 thru 209.
 Maximum reservoir capacity value that was listed for all literature review references.
 Minimum reservoir capacity value that was listed for all literature review references.
 Range of reservoir capacity values that were listed for all literature review references.
 Columns AN thru BN contain the reservoir capacity as listed by each literature review reference.
 Columns BO thru BW contain the estimated reservoir cost as listed by each literature review reference.
 Reason not constructed
 Additional reason not constructed
 Maximum crest water surface elevation as listed in literature review reference
 Minimum crest water surface elevation as listed in literature review reference
 Township/Range that site is located in
 Township that site is located in
 Range that site is located in
 County that site is located in
 Hydrologic unit code (HUC) that site is located in
 Subbasin that site is located in
 7.5' minute USGS quadrangle that site is located in
 "X" indicates that the site was identified in a literature review reference but that the specific location is unknown.

Page_ 1thru7

11x17 print formatted sheets that contain the following fields:
 Dam Name
 Dam Name 2 (a.k.a)
 Dam Name 3 (a.k.a)
 Basin
 Type
 Water Source
 Water Source 2
 Water Source 3
 Literature Review References

Page_ 8thru14

11x17 print formatted sheets that contain the following fields:
 Dam Name
 Reservoir Capacity Value by Literature Review Reference

Page_ 15thru21

11x17 print formatted sheets that contain the following fields:
 Dam Name
 Maximum Capacity Value
 Minimum Capacity Value
 Range of Capacity Values
 Reservoir Capacity Value by Literature Review Reference
 Reason Not Constructed
 Additional Reason Not Constructed
 Maximum Crest Water Surface Elevation
 Minimum Crest Water Surface Elevation
 TR
 Township
 Range
 County
 HUC No.
 Subbasin Name
 Quad Name
 Location Unknown

Bureau of Reclamation, 1994
 Bureau of Reclamation, 1992
 U.S. Army Corps of Engineers, 1981
 Idaho Water Resources Research Institute, 1979
 Idaho Water Resources Research Institute, 1981
 Idaho Water Resources Research Institute, 1979
 Idaho Water Resource Board, 1992
 Idaho Water Resource Board, 1996
 Bureau of Reclamation, 1999
 Bureau of Reclamation, 1938
 Bureau of Reclamation, 1940
 Bureau of Reclamation, 1955
 Bureau of Reclamation, 1961
 Bureau of Reclamation, 1966
 Bureau of Reclamation, 1979
 Idaho National Reclamation, 1997
 Idaho National Engineering and Environmental Laboratory, 1998
 United States Department of Water Resources, 1976
 Water Resources Research Institute, 2004
 Southwest Idaho Water Survey, 1965
 Idaho Department of Water Resources, 1970
 U.S. Army Corps of Engineers, 1976
 Idaho Water Resources Research Institute, 1995
 U.S. Army Corps of Engineers, 1976
 Idaho Water Resources Research Institute, 1981
 Water and Power Resources Service, 1980

Dam Name	Dam Name 2 (a.k.a)	Dam Name 3 (a.k.a)	Basin	Type	Water Source	Water Source 2	Water Source 3	Bureau of Reclamation, 1994	Bureau of Reclamation, 1992	U.S. Army Corps of Engineers, 1981	Idaho Water Resources Research Institute, 1979	Idaho Water Resources Research Institute, 1981	Idaho Water Resources Research Institute, 1979	Idaho Water Resource Board, 1992	Idaho Water Resource Board, 1996	Bureau of Reclamation, 1999	Bureau of Reclamation, 1938	Bureau of Reclamation, 1940	Bureau of Reclamation, 1955	Bureau of Reclamation, 1961	Bureau of Reclamation, 1966	Bureau of Reclamation, 1979	Idaho National Reclamation, 1997	Idaho National Engineering and Environmental Laboratory, 1998	United States Department of Water Resources, 1976	Water Resources Research Institute, 2004	Southwest Idaho Water Survey, 1965	Idaho Department of Water Resources, 1970	U.S. Army Corps of Engineers, 1976	Idaho Water Resources Research Institute, 1995	U.S. Army Corps of Engineers, 1976	Idaho Water Resources Research Institute, 1981	Water and Power Resources Service, 1980				
Lower Dry Creek			Boise	Off-Stream	Boise River			X	X	X																											
Lower Feather River			Boise	Off-Stream	South Fork Boise River			X	X	X																											
Lower Little Smoky Creek			Boise	Off-Stream	Big Smoky Creek	South Fork Boise River				X																											
Magello			Boise	Off-Stream	Payette River					X																											
Meadow Creek			Boise	Off-Stream	Crooked Rivers	North Fork Boise River		X	X	X																											
Middleton			Boise	Off-Stream	Payette River			X	X	X																											
Moore's Flat			Boise	Off-Stream	South Fork Boise River			X	X	X	X																										
Pioneerville			Boise	Off-Stream	South Fork Payette River			X	X	X																											
Placerville			Boise	Off-Stream	South Fork Payette River			X	X	X																											
Rabbit Creek	Lower 12HD 15		Boise	Off-Stream	North Fork Boise River	Crooked River		X	X	X										X															X	X	
Sand Hollow Gulch	Sand Hollow Creek		Boise	Off-Stream	Payette River	Boise River		X	X	X	X									X																	
Sawmill			Boise	Off-Stream	Fall Creek						X																									X	
Sebree			Boise	Off-Stream	Payette River	Boise River				X																											
Stuart Gulch			Boise	Off-Stream	Boise River			X	X	X																											
Trapper Flat			Boise	Off-Stream	South Fork Payette River			X	X	X																											
Trinity Mountain			Boise	Off-Stream	South Fork Boise River					X																											
Upper Crooked River			Boise	Off-Stream	South Fork Payette River			X	X	X																											
Upper Feather River			Boise	Off-Stream	South Fork Boise River					X																											
Upper Little Smoky Creek			Boise	Off-Stream	Big Smoky Creek	South Fork Boise River				X																											
Upper Willow Creek			Boise	Off-Stream	Payette River			X	X	X																											
West Hartley Gulch			Boise	Off-Stream	Boise River	Payette River		X	X	X																											
Willow Creek			Boise	Off-Stream	South Fork Boise River					X																											
Woods Gulch			Boise	Off-Stream	Boise River			X	X	X																											
Alexander Flats			Boise	Onstream	Middle Fork Boise River			X	X		X									X																X	
Bald Mountain			Boise	Onstream	Middle Fork Boise River					X																											X
Barber Flats			Boise	Onstream	North Fork Boise River			X	X		X									X																X	X
Bascom Flats	Bascom Ranch		Boise	Onstream	South Fork Boise River			X	X		X									X																X	
Beaver Creek			Boise	Onstream	South Fork Boise River																X																
Big Smoky	Bascombe Ranch	Upper Big Smoky	Boise	Onstream	South Fork Boise River			X	X		X									X	X															X	X
Blacks Creek			Boise	Onstream	Tenmile Creek																X																
Boise-Rochester			Boise	Onstream	Middle Fork Boise River																X																
Casey Ranch	Dog Creek		Boise	Onstream	South Fork Boise River			X	X												X															X	

Dam Name	Dam Name 2 (a.k.a)	Dam Name 3 (a.k.a)	Basin	Type	Water Source	Water Source 2	Water Source 3	Bureau of Reclamation, 1994	Bureau of Reclamation, 1992	U.S. Army Corps of Engineers, 1981	Idaho Water Resources Research Institute, 1979	Idaho Water Resources Research Institute, 1980	Idaho Water Resources Research Institute, 1981	Idaho Water Resources Research Institute, 1979	Idaho Water Resource Board, 1992	Bureau of Reclamation, 1996	Bureau of Reclamation, 1999	Bureau of Reclamation, 1938	Bureau of Reclamation, 1940	Bureau of Reclamation, 1955	Bureau of Reclamation, 1961	Bureau of Reclamation, 1966	Bureau of Reclamation, 1979	Idaho National Engineering and Environmental Laboratory, 1998	Idaho National Engineering and Environmental Laboratory, 1976	United States Geological Survey, 2004	Water Resources Research Institute, 1976	Water Resources Research Institute, 1976	Southwest Idaho Water Development Project, 1966	U.S. Army Corps of Engineers, 1990	U.S. Army Corps of Engineers, 1976	Idaho Water Resources Research Institute, 1995	Water and Power Resources Service, 1980			
Bogus Creek			Payette	Onstream	North Fork Payette River			X	X			X		X											X	X		X								
Boiling Springs			Payette	Onstream	Middle Fork Payette River			X	X																		X									
Bull Trout Lake			Payette	Onstream	Warm Springs Creek																		X													
Cabarton			Payette	Onstream	North Fork Payette River			X	X			X		X	X	X																				
Canyon Creek			Payette	Onstream	South Fork Payette River			X	X			X				X										X	X									
Casner Creek	12HG 11		Payette	Onstream	South Fork Payette River			X	X			X				X										X	X									
Cottonwood Creek			Payette	Onstream	Squaw Creek			X	X							X											X									
Garden Valley			Payette	Onstream	North Fork Payette River	Payette River	South Fork Payette River	X	X	X		X		X	X	X	X	X							X	X	X									
Garden Valley Reregulating			Payette	Onstream	South Fork Payette River	Payette River		X	X			X					X								X	X										
Gold Fork			Payette	Onstream	Gold Fork River						X	X	X	X		X								X												
Grand Jean			Payette	Onstream	South Fork Payette River			X	X				X	X		X										X	X									
Horseshoe Bend			Payette	Onstream	Payette River			X	X			X															X									
Jake's Creek			Payette	Onstream	Jake's Creek	Willow Creek										X																				
Lowman			Payette	Onstream	South Fork Payette River						X																X									
MacIntyre Gulch			Payette	Onstream	MacIntyre Gulch	Little Willow Creek										X																				
Ola	Squaw Creek	Little Squaw Creek	Payette	Onstream	Squaw Creek			X	X			X		X		X											X									
Oxbow Bend			Payette	Onstream	South Fork Payette River			X	X			X				X							X			X	X									
Peace Valley			Payette	Onstream	Silver Creek						X	X			X											X										
Rocky Canyon			Payette	Onstream	Middle Fork Payette River			X	X			X														X										
Sand Hollow			Payette	Onstream	Payette River			X	X	X	X																									
Scott Creek			Payette	Onstream	Deadwood River						X															X	X									
Scott Valley			Payette	Onstream	Big Creek			X	X					X		X																				
Smith Ferry			Payette	Onstream	North Fork Payette River									X	X	X																				
Steep Creek	Sheep Creek		Payette	Onstream	South Fork Payette River						X					X										X	X									
Tamarack Falls			Payette	Onstream	North Fork Payette River						X	X	X																							
12GH 23			Payette	Unclassified	Middle Fork Payette River						X					X																				
12GH 24			Payette	Unclassified	Middle Fork Payette River						X					X																				
12HG 11	Casner Creek		Payette	Unclassified	South Fork Payette River						X																									
12HG 13			Payette	Unclassified	South Fork Payette River						X																									
12HG 21			Payette	Unclassified	Payette River						X																									
12HG 22			Payette	Unclassified	Payette River						X					X												X								
Banks			Payette	Unclassified	North Fork Payette River																		X				X									

Dam Name	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1994	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1992	Reservoir Capacity (acre-feet) U.S. Army Corps of Engineers, 1981	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1979	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1980	Reservoir Capacity (acre-feet) Idaho Water Resource Board, 1992	Reservoir Capacity (acre-feet) Idaho Water Resource Board, 1996	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1999	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1938	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1940	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1955	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1961	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1966	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1979	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1997	Reservoir Capacity (acre-feet) Idaho National Engineering and Environmental Laboratory, 1998	Reservoir Capacity (acre-feet) Idaho Department of Water Resources, 1976	Reservoir Capacity (acre-feet) Idaho Department of Water Resources, 2004	Reservoir Capacity (acre-feet) United States Geological Survey, 1965	Reservoir Capacity (acre-feet) Southwest Idaho Water Development Project, 1966	Reservoir Capacity (acre-feet) Idaho Department of Water Resources, 1970	Reservoir Capacity (acre-feet) U.S. Army Corps of Engineers, 1990	Reservoir Capacity (acre-feet) U.S. Army Corps of Engineers, 1976	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1981	Reservoir Capacity (acre-feet) Water and Power Resources Service, 1980		
Anderson Ranch														30,000													
Arrowrock								3,155						35,290	6,336												
Hubbard												4,060															
Lucky Peak																		35,000									
Archie Mountain	49,000																										
Bear Creek																											
Bear River	93,000		95,000																								
Big Gulch	36,000																										
Big Owl																											
Blacks Creek Road	44,000																										
Boardman Creek																											
Cat Creek	93,000		95,000																								
Chadre		24,000																									
Conswello		56,000																									
Coyote Butte	260,000																										
Crooked River East	37,000																										
Crooked River West	119,000																										
Dixie Creek	46,000		47,000																								
Dry Creek	53,000		54,000							220,000																	
Dunnigan Creek	240,000																										
Elk Creek	41,000																										
Firebird	67,000																										
Granite Creek	48,000																										
Grimes Creek		1,500,000								5,000									5,000								
Horseshoe Bend Road	100,000																										
Indian Creek-Mayfield	52,000																										
Johnson Creek	180,000																										
Krall Mountain		121,000																									
Lanktree Gulch	22,000																										
Lime Creek																											
Little Gulch	16,000																										
Lower Crooked River		250,000																									

Dam Name	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1994	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1992	Reservoir Capacity (acre-feet) U.S. Army Corps of Engineers, 1981	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1979	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1980	Reservoir Capacity (acre-feet) Idaho Water Resource Board, 1992	Reservoir Capacity (acre-feet) Idaho Water Resource Board, 1996	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1999	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1938	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1940	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1955	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1961	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1966	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1976	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1979	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1997	Reservoir Capacity (acre-feet) Idaho National Engineering and Environmental Laboratory, 1998	Reservoir Capacity (acre-feet) Idaho Department of Water Resources, 1976	Reservoir Capacity (acre-feet) United States Geological Survey, 2004	Reservoir Capacity (acre-feet) Water Resources Research Institute, 1965	Reservoir Capacity (acre-feet) Southwest Idaho Water Development Project, 1966	Reservoir Capacity (acre-feet) Idaho Department of Water Resources, 1990	Reservoir Capacity (acre-feet) U.S. Army Corps of Engineers, 1976	Reservoir Capacity (acre-feet) U.S. Army Corps of Engineers, 1990	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1981	Reservoir Capacity (acre-feet) Water and Power Resources Service, 1980	
Deer Park																											
Dog Creek	165,000									165,000																	
Dutch Frank Hot Springs																											
Featherville	34,000																										
Graham	44,000									44,000								44,000	84,700								
Indian Point	20,000																										
King	56,000																										
Lake Creek																											
Little Smoky	12,000									12,000																	
Long Gulch			27,000																								
Lost Creek																											
Monarch																											
Raspberry	160,000									145,000									180,000								
South Fork Boise River	113,000									113,000																	
Slide Gulch																											
Swanholm Creek																											
Tin Cup Creek																											
Twin Springs	490,000			410,000			170,000			410,000									410,000								
Worewick	12,000									12,000																	
Yuba	90,000																										
12HD 1																											
12HD 10																											
12HD 11																											
12HD 13																											
12HD 14																											
12HD 17																											
12HD 18																											
12HD 3																											
12HD 4																											
12HD 6																											
12HD 7																											
12HD 9																											

Dam Name	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1994	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1992	Reservoir Capacity (acre-feet) U.S. Army Corps of Engineers, 1981	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1979	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1980	Reservoir Capacity (acre-feet) Idaho Water Resource Board, 1992	Reservoir Capacity (acre-feet) Idaho Water Resource Board, 1996	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1999	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1938	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1940	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1955	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1961	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1966	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1976	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1979	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1997	Reservoir Capacity (acre-feet) Idaho National Engineering and Environmental Laboratory, 1998	Reservoir Capacity (acre-feet) Idaho Department of Water Resources, 1976	Reservoir Capacity (acre-feet) Idaho Department of Water Resources, 2004	Reservoir Capacity (acre-feet) United States Geological Survey, 1965	Reservoir Capacity (acre-feet) Water Resources Research Institute, 1970	Reservoir Capacity (acre-feet) Southwest Idaho Water Development Project, 1966	Reservoir Capacity (acre-feet) U.S. Army Corps of Engineers, 1990	Reservoir Capacity (acre-feet) U.S. Army Corps of Engineers, 1976	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1981	Reservoir Capacity (acre-feet) Water and Power Resources Service, 1980	
Alva Greene																											
Anderson Ranch Rereg No 1																											770
Anderson Ranch Rereg No 2																											2,600
Atlanta																											
Blacks Lake																											
Boise King Powersite																											
GWP 13																											
North Fork Boise River																											
Trail Creek																											
Unnamed																											
Unnamed																											
Unnamed																											
Unnamed																											
Unnamed																											
Black Canyon		180,000											500														
Big Payette Lake																											
Little Payette Lake	37,000									63,000																	
Upper Payette Lake	98,000		49,000		49,000	37,000				37,000						50,000		49,000									
Anderson Creek	51,000																										
Beaver Creek																											
Big Creek		400,000																									
Big Eddy																											
Big Willow Creek	310,000		313,000																								
Birding Island	175,000																										
Bissel Creek	153,500	187,000	200,000		153,500																						
Boulder Creek	93,000																										
Browns Pond		92,000																									
Cloverleaf																											
Crystal School	91,000																										
Deadwood River																											
Dry Buck Creek	380,000																										
Eightmile																											

Dam Name	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1994	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1992	Reservoir Capacity (acre-feet) U.S. Army Corps of Engineers, 1981	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1979	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1980	Reservoir Capacity (acre-feet) Idaho Water Resource Board, 1992	Reservoir Capacity (acre-feet) Idaho Water Resource Board, 1996	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1999	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1938	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1940	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1955	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1961	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1966	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1979	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1997	Reservoir Capacity (acre-feet) Idaho National Engineering and Environmental Laboratory, 1998	Reservoir Capacity (acre-feet) Idaho Department of Water Resources, 1976	Reservoir Capacity (acre-feet) United States Geological Survey, 2004	Reservoir Capacity (acre-feet) Southwest Idaho Water Survey, 1985	Reservoir Capacity (acre-feet) Idaho Water Development Institute, 1970	Reservoir Capacity (acre-feet) Idaho Department of Water Resources, 1986	Reservoir Capacity (acre-feet) U.S. Army Corps of Engineers, 1990	Reservoir Capacity (acre-feet) U.S. Army Corps of Engineers, 1976	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1981	Reservoir Capacity (acre-feet) Water and Power Resources Service, 1980		
Fogus Site																											
Garden Valley				576,000																							
Gold Fork		930,000																									
Grassy Flat	32,000																										
Green Mountain	24,000																										
Haw Creek	33,000		35,000																								
High Valley	1,760,000																										
Horsethief Basin	75,000																										
Kennally Creek		330,000	351,000																								
Little Willow Creek	85,000									1,000																	
Lower Scriver Creek	44,000																										
Lower Shafer Creek	34,000																										
Lower Squaw Creek	550,000																										
Mains																											
Middle Fork Payette River	1,600,000																										
Montour Valley	32,000																										
Pidgeon Flat		490,000																									
Round Valley	430,000																										
Sand Hollow	39,000									39,000																	
Scott Valley		131,000																									
Scriver Creek																											
Slick Rock		35,000																									
Sweet	148,000																										
Tripod Creek	54,000		57,000																								
Upper Big Willow Creek	350,000		160,000																								
Upper Shafer Creek	93,000																										
Upper Squaw Creek	2,600,000																										
Warm Spring Creek	61,500																										
Wash Creek	55,000																										
Alkali Creek										5,000																	
Archie Creek	140,000																										270,000
Big Pine Creek	110,000																										

Dam Name	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1994	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1992	Reservoir Capacity (acre-feet) U.S. Army Corps of Engineers, 1981	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1979	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1980	Reservoir Capacity (acre-feet) Idaho Water Resource Board, 1992	Reservoir Capacity (acre-feet) Idaho Water Resource Board, 1996	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1999	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1938	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1940	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1955	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1961	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1966	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1976	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1979	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1997	Reservoir Capacity (acre-feet) Idaho National Engineering and Environmental Laboratory, 1998	Reservoir Capacity (acre-feet) Idaho Department of Water Resources, 1976	Reservoir Capacity (acre-feet) United States Geological Survey, 2004	Reservoir Capacity (acre-feet) Southwest Idaho Water Survey, 1965	Reservoir Capacity (acre-feet) Idaho Department of Water Resources, 1970	Reservoir Capacity (acre-feet) U.S. Army Corps of Engineers, 1990	Reservoir Capacity (acre-feet) U.S. Army Corps of Engineers, 1976	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1981	Reservoir Capacity (acre-feet) Water and Power Resources Service, 1980		
Bogus Creek	33,000					33,000											33,000										
Boiling Springs	70,000																										
Bull Trout Lake										15,000																	
Cabarton	1,400,000		66,000 - 95,000							1,400,000																	
Canyon Creek	33,000																										
Casner Creek	142,000																										
Cottonwood Creek	50,000																										
Garden Valley	1,940,000	2,400,000				1,940,000	1,330,000			1,940,000								1,940,000		2,400,000							
Garden Valley Reregulating	8,000																										
Gold Fork						79,700	80,000			80,000							80,000										
Grand Jean	88,000					88,000	90,000			88,000																	
Horseshoe Bend	480,000																			600,000							
Jake's Creek										3,800																	
Lowman																											
MacIntyre Gulch										1,000																	
Oia	93,000						50,000			93,000																	
Oxbow Bend	60,000																			70,000							
Peace Valley				13,000		13,000				13,000									13,000								
Rocky Canyon	23,000																										
Sand Hollow	145,000		68,000																								
Scott Creek																											
Scott Valley	18,000						18,000			18,000																	
Smith Ferry							95,000																				
Steep Creek																											
Tamarack Falls				20,000			20,000																				
12GH 23																											
12GH 24																											
12HG 11																											
12HG 13																											
12HG 21																											
12HG 22																											
Banks																											

Dam Name	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1994	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1992	Reservoir Capacity (acre-feet) U.S. Army Corps of Engineers, 1981	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1979	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1980	Reservoir Capacity (acre-feet) Idaho Water Resource Board, 1992	Reservoir Capacity (acre-feet) Idaho Water Resource Board, 1996	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1999	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1938	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1940	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1955	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1961	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1986	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1979	Reservoir Capacity (acre-feet) Bureau of Reclamation, 1997	Reservoir Capacity (acre-feet) Idaho National Engineering and Environmental Laboratory, 1998	Reservoir Capacity (acre-feet) Idaho Department of Water Resources, 1976	Reservoir Capacity (acre-feet) United States Geological Survey, 2004	Reservoir Capacity (acre-feet) Water Resources Research Institute, 1965	Reservoir Capacity (acre-feet) Southwest Idaho Water Development Project, 1966	Reservoir Capacity (acre-feet) Idaho Department of Water Resources, 1990	Reservoir Capacity (acre-feet) U.S. Army Corps of Engineers, 1976	Reservoir Capacity (acre-feet) Idaho Water Resources Research Institute, 1981	Reservoir Capacity (acre-feet) Water and Power Resources Service, 1980	
Banks Lower																									
Banks to Horseshoe Bend																									
Big Creek																20,000									
Big Falls																									
Black Bear																									
Box Creek																									
Brush Creek																									
Clear Creek																									
Dead Horse Creek																									
Deadwood Canyon																									
Deer Creek																									
Elk Lake																									
Fall Creek																									
Ferncroft																									
Fisher Creek																									
Grimes Pass																									
High Valley																									
Jug Creek																									
Kirkham Hot Springs																			270,000						
Louie Creek																									
North Fork																									
Paddock Valley																									
Pine Flat																									
Round Valley Upper																									
Shafer Creek																									
Squaw Valley																									
Ten Mile																									
Warm Spring																									

Dam Name	Maximum Capacity Value	Minimum Capacity Value	Range of Capacity Values	Estimated Cost Bureau of Reclamation, 1994	Estimated Cost Bureau of Reclamation, 1938	Reason Not Constructed	Additional Reason Not Constructed	Maximum Crest Water Surface Elevation	Minimum Crest Water Surface Elevation	TR	Township	Range	County	HUC No.	Subbasin Name	Quad. Name	Location Unknown
Anderson Ranch	30,000	30,000	28,945							01S08E	01S	08E	ELMORE	17050113	SOUTH FORK BOISE	ANDERSON RANCH DAM	
Arrowrock	35,290	3,155	3155-35290							03N04E	03N	04E	BOISE	17050112	BOISE-MORES	ARROWROCK DAM	
Hubbard	4,060	4,060	4,060							02N01E	02N	01E	ADA	17050114	LOWER BOISE	CLOVERDALE	
Lucky Peak	35,000	35,000	35,000			Expansion precluded due to high capitol cost				02N03E	02N	03E	ADA	17050114	LOWER BOISE	LUCKY PEAK	
Archie Mountain	49,000	49,000	49,000							08N08E	08N	08E	BOISE	17050111	NORTH AND MIDDLE FORK BOISE	JACKSON PEAK	
Bear Creek						Anderson Ranch Regulates Runoff				03N13E	03N	13E	CAMAS	17050113	SOUTH FORK BOISE	BOARDMAN CREEK	
Bear River	95,000	93,000	93000-95000			Anderson Ranch Regulates Runoff				06N10E	06N	10E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	NAHNEKE MOUNTAIN	
Big Gulch	36,000	36,000	36,000							05N01E	05N	01E	ADA	17050114	LOWER BOISE	EAGLE	
Big Owl	NA	NA	NA							07N09E	07N	09E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	BEAR RIVER	
Blacks Creek Road	44,000	44,000	44,000			Runoff inadequate.				02N05E	02N	05E	ELMORE	17050113	SOUTH FORK BOISE	GRAPE MOUNTAIN	
Boardman Creek	NA	NA	NA							03N13E	03N	13E	CAMAS	17050113	SOUTH FORK BOISE	BOARDMAN CREEK	
Cat Creek	95,000	93,000	93000-95000							01S09E	01S	09E	ELMORE	17050113	SOUTH FORK BOISE	ANDERSON RANCH DAM	
Chadre	24,000	24,000	24,000														X
Conswello	56,000	56,000	56,000														X
Coyote Butte	260,000	260,000	260,000							02S03E	02S	03E	ADA	17050114	LOWER BOISE	ORCHARD	
Crooked River East	37,000	37,000	37,000							07N07E	07N	07E	BOISE	17050111	NORTH AND MIDDLE FORK BOISE	BIG OWL CREEK	
Crooked River West	119,000	119,000	119,000							07N07E	07N	07E	BOISE	17050111	NORTH AND MIDDLE FORK BOISE	BIG OWL CREEK	
Dixie Creek	47,000	46,000	46000-47000							01S08E	01S	08E	ELMORE	17050113	SOUTH FORK BOISE	ANDERSON RANCH DAM	
Dry Creek	220,000	53,000	53000-220000							04N02E	04N	02E	ADA	17050114	LOWER BOISE	BOISE NORTH	
Dunnigan Creek	240,000	240,000	240,000							04N04E	04N	04E	BOISE	17050112	BOISE-MORES	DUNNIGAN CREEK	
Elk Creek	41,000	41,000	41,000							07N06E	07N	06E	BOISE	17050112	BOISE-MORES	SUNSET MOUNTAIN	
Firebird	67,000	67,000	67,000							05N01W	05N	01W	ADA	17050114	LOWER BOISE	SOUTHEAST EMMETT	
Granite Creek	48,000	48,000	48,000							07N04E	07N	04E	BOISE	17050112	BOISE-MORES	PLACERVILLE	
Grimes Creek	1,500,000	5,000	5000-1500000			Lucky Peak Regulation Runoff				06N04E	06N	04E	BOISE	17050112	BOISE-MORES	WARM SPRINGS POINT	
Horseshoe Bend Road	100,000	100,000	100,000							05N01E	05N	01E	ADA	17050114	LOWER BOISE	PEARL	
Indian Creek-Mayfield	52,000	52,000	52,000							01N05E	01N	05E	ELMORE	17050114	LOWER BOISE	MAYFIELD	
Johnson Creek	180,000	180,000	180,000							04N13E	04N	13E	CAMAS	17050113	SOUTH FORK BOISE	NEWMAN PEAK	
Krall Mountain	121,000	121,000	121,000							03N06E	03N	06E	ELMORE	17050113	SOUTH FORK BOISE	LONG GULCH	
Lanktree Gulch	22,000	22,000	22,000							05N02W	05N	02W	CANYON	17050114	LOWER BOISE	MIDDLETON	
Lime Creek	NA	NA	NA			Recommended specifically for protection as protected river.				01N11E	01N	11E	ELMORE	17050113	SOUTH FORK BOISE	SPROUT MOUNTAIN	
Little Gulch	16,000	16,000	16,000							05N01E	05N	01E	ADA	17050114	LOWER BOISE	SOUTHEAST EMMETT	
Lower Crooked River	250,000	250,000	250,000														X
Lower Dry Creek	43,000	43,000	43,000							05N02E	05N	02E	ADA	17050114	LOWER BOISE	EAGLE	
Lower Feather River	24,000	24,000	24,000							04N10E	04N	10E	ELMORE	17050113	SOUTH FORK BOISE	CAYUSE POINT	
Lower Little Smoky Creek	76,000	76,000	76,000			Anderson Ranch Regulates Runoff				04N14E	04N	14E	CAMAS	17050113	SOUTH FORK BOISE	PARADISE PEAK	
Magello	27,000	27,000	27,000														X

Dam Name	Maximum Capacity Value	Minimum Capacity Value	Range of Capacity Values	Estimated Cost Bureau of Reclamation, 1994	Estimated Cost Bureau of Reclamation, 1938	Reason Not Constructed	Additional Reason Not Constructed	Maximum Crest Water Surface Elevation	Minimum Crest Water Surface Elevation	TR	Township	Range	County	HUC No.	Subbasin Name	Quad. Name	Location Unknown
Meadow Creek	44,000	44,000	44,000							05N07E	05N	07E	BOISE	17050111	NORTH AND MIDDLE FORK BOISE	RABBIT CREEK SUMMIT	
Middleton	29,000	29,000	29,000							05N02W	05N	02W	CANYON	17050114	LOWER BOISE	MIDDLETON	
Moore's Flat	55,000	52,000	52000-55000							01N10E	01N	10E	ELMORE	17050113	SOUTH FORK BOISE	PINE	
Pioneerville	58,000	58,000	58,000							07N05E	07N	05E	BOISE	17050112	BOISE-MORES	PIONEERVILLE	
Placerville	21,000	21,000	21,000							07N05E	07N	05E	BOISE	17050112	BOISE-MORES	PLACERVILLE	
Rabbit Creek	152,000	152,000	152,000			Twin Springs site preferred				06N07E	06N	07E	BOISE	17050111	NORTH AND MIDDLE FORK BOISE	BARBER FLAT	
Sand Hollow Gulch	42,000	39,000	39000-42000			Land in reservoir area developed under Boise-Payette project				05N04W	05N	04W	CANYON	17050114	LOWER BOISE	PARMA SE	
Sawmill	NA	NA	NA							02N09E	02N	09E	ELMORE	17050113	SOUTH FORK BOISE	HOUSE MOUNTAIN	
Sebree	30,000	30,000	30,000														X
Stuart Gulch	37,000	37,000	37,000							04N02E	04N	02E	ADA	17050114	LOWER BOISE	BOISE NORTH	
Trapper Flat	178,000	178,000	178,000							08N09E	08N	09E	BOISE	17050111	NORTH AND MIDDLE FORK BOISE	JACKSON PEAK	
Trinity Mountain	104,000	104,000	104,000														X
Upper Crooked River	49,000	49,000	49,000							06N08E	06N	08E	BOISE	17050111	NORTH AND MIDDLE FORK BOISE	BARBER FLAT	
Upper Feather River	70,000	70,000	70,000														X
Upper Little Smoky Creek	87,000	87,000	87,000							03N14E	03N	14E	CAMAS	17050113	SOUTH FORK BOISE	DOLLARHIDE MOUNTAIN	
Upper Willow Creek	31,000	31,000	31,000							06N01W	06N	01W	GEM	17050114	LOWER BOISE	SOUTHEAST EMMETT	
West Hartley Gulch	31,000	31,000	31,000							06N03W	06N	03W	GEM	17050114	LOWER BOISE	SAND HOLLOW	
Willow Creek	46,000	46,000	46,000							03N05E	03N	05E	ELMORE	17050113	SOUTH FORK BOISE	GRAPE MOUNTAIN	
Woods Gulch	26,000	26,000	26,000							05N01E	05N	01E	ADA	17050114	LOWER BOISE	EAGLE	
Alexander Flats	50,000	15,000	15000-50000							05N07E	05N	07E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	SHEEP CREEK	
Bald Mountain	NA	NA	NA							06N10E	06N	10E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	ATLANTA WEST	
Barber Flats	76,000	76,000	76,000							05N08E	05N	08E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	BARBER FLAT	
Bascum Flats	122,000	90,000	90000-122000							03N11E	03N	11E	ELMORE	17050113	SOUTH FORK BOISE	GROUSE BUTTE	
Beaver Creek						Anderson Ranch Regulates Runoff				03N12E	03N	12E	CAMAS	17050113	SOUTH FORK BOISE	JUMBO MOUNTAIN	
Big Smoky	258,000	125,000	125000-258000			Anderson Ranch Regulates Runoff				03N13E	03N	13E	CAMAS	17050113	SOUTH FORK BOISE	BOARDMAN CREEK	
Blacks Creek	19,000	19,000	19,000			Runoff inadequate				02N02E	02N	02E	ADA	17050114	LOWER BOISE	OWYHEE	
Boise-Rochester						Twin Springs site preferred				06N11E	06N	11E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	ATLANTA WEST	
Casey Ranch	369,000	64,000	64000-369000							02N10E	02N	10E	ELMORE	17050113	SOUTH FORK BOISE	FEATHERVILLE	
Deer Park						Twin Springs site preferred				07N09E	07N	09E	BOISE	17050111	NORTH AND MIDDLE FORK BOISE	BEAR RIVER	
Dog Creek	165,000	165,000	165,000							02N10E	02N	10E	ELMORE	17050113	SOUTH FORK BOISE	FEATHERVILLE	
Dutch Frank Hot Springs						Twin Springs site preferred				05N09E	05N	09E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	GRAND MOUNTAIN	
Featherville	34,000	34,000	34,000							03N10E	03N	10E	ELMORE	17050113	SOUTH FORK BOISE	GROUSE BUTTE	
Graham	84,700	44,000	44000-84700							08N10E	08N	10E	BOISE	17050111	NORTH AND MIDDLE FORK BOISE	SWANHOLM PEAK	
Indian Point	20,000	20,000	20,000							01S08E	01S	08E	ELMORE	17050113	SOUTH FORK BOISE	LONG TOM RESERVOIR	
King	56,000	56,000	56,000							05N08E	05N	08E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	BARBER FLAT	
Lake Creek						Twin Springs site preferred				06N10E	06N	10E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	PHIFER CREEK	

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Little Smoky	12,000	12,000	12,000			Anderson Ranch Regulates Runoff				03N14E	03N	14E	CAMAS	17050113	SOUTH FORK BOISE	SYDNEY BUTTE	
Long Gulch	27,000	27,000	27,000							03N06E	03N	06E	ELMORE	17050113	SOUTH FORK BOISE	LONG GULCH	
Lost Creek	NA	NA	NA							06N08E	06N	08E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	BARBER FLAT	
Monarch						Twin Springs site preferred				06N10E	06N	10E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	PHIFER CREEK	
Raspberry	180,000	145,000	145000-180000							02N07E	02N	07E	ELMORE	17050113	SOUTH FORK BOISE	DANSKIN PEAK	
South Fork Boise River	113,000	113,000	113,000							01N07E	01N	07E	ELMORE	17050113	SOUTH FORK BOISE	CATHEDRAL ROCKS	
Slide Gulch	NA	NA	NA							04N06E	04N	06E	BOISE	17050112	BOISE-MORES	TWIN SPRINGS	
Swanholm Creek						Twin Springs site preferred				05N09E	05N	09E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	GRAND MOUNTAIN	
Tin Cup Creek	152,000	152,000	152,000			Twin Springs site preferred				05N07E	05N	07E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	BARBER FLAT	
Twin Springs	490,000	170,000	170000-490000			Not economically feasible				04N07E	04N	07E	ELMORE	17050112	BOISE-MORES	TWIN SPRINGS	
Worewick	12,000	12,000	12,000			Anderson Ranch Regulates Runoff				03N14E	03N	14E	CAMAS	17050113	SOUTH FORK BOISE	SYDNEY BUTTE	
Yuba	90,000	90,000	90,000			Twin Springs site preferred				05N11E	05N	11E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	ATLANTA WEST	
12HD 1	NA	NA	NA			Twin Springs site preferred				04N06E	04N	06E	BOISE	17050112	BOISE-MORES	TWIN SPRINGS	
12HD 10	NA	NA	NA							05N09E	05N	09E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	GRAND MOUNTAIN	
12HD 11	NA	NA	NA			Twin Springs site preferred				05N08E	05N	08E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	GRAND MOUNTAIN	
12HD 13	NA	NA	NA			Twin Springs site preferred				06N08E	06N	08E	BOISE	17050111	NORTH AND MIDDLE FORK BOISE	BEAR RIVER	
12HD 14	NA	NA	NA			Twin Springs site preferred				06N08E	06N	08E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	BIG OWL CREEK	
12HD 17	NA	NA	NA			High Unit Cost				03N12E	03N	12E	CAMAS	17050113	SOUTH FORK BOISE	BOARDMAN CREEK	
12HD 18	NA	NA	NA							03N12E	03N	12E	CAMAS	17050113	SOUTH FORK BOISE	JUMBO MOUNTAIN	
12HD 3	NA	NA	NA							06N11E	06N	11E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	ATLANTA EAST	
12HD 4	NA	NA	NA							06N11E	06N	11E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	ATLANTA WEST	
12HD 6	NA	NA	NA							06N10E	06N	10E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	PHIFER CREEK	
12HD 7	NA	NA	NA							06N10E	06N	10E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	PHIFER CREEK	
12HD 9	NA	NA	NA							05N09E	05N	09E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	GRAND MOUNTAIN	
Alva Greene	NA	NA	NA							10N05E	10N	05E	BOISE	17050121	MIDDLE FORK PAYETTE	LIGHTNING RIDGE	
Anderson Ranch Rereg No 1	770	770	770							01S08E	01S	08E	ELMORE	17050113	SOUTH FORK BOISE	ANDERSON RANCH DAM	
Anderson Ranch Rereg No 2	2,600	2,600	2,600							01S08E	01S	08E	ELMORE	17050113	SOUTH FORK BOISE	ANDERSON RANCH DAM	
Atlanta	NA	NA	NA							06N12E	06N	12E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	ATLANTA EAST	
Blacks Lake	NA	NA	NA														X
Boise King Powersite	NA	NA	NA							06N10E	06N	10E	ELMORE	17050111	NORTH AND MIDDLE FORK BOISE	PHIFER CREEK	
GWP 13	NA	NA	NA														X
North Fork Boise River	NA	NA	NA														X
Trail Creek	NA	NA	NA							07N10E	07N	10E	BOISE	17050111	NORTH AND MIDDLE FORK BOISE	SWANHOLM PEAK	
Unnamed	NA	NA	NA							01N09E	01N	09E	ELMORE	17050113	SOUTH FORK BOISE	HOUSE MOUNTAIN	
Unnamed	NA	NA	NA							02N10E	02N	10E	ELMORE	17050113	SOUTH FORK BOISE	PINE	
Unnamed	NA	NA	NA							01N10E	01N	10E	ELMORE	17050113	SOUTH FORK BOISE	PINE	

Dam Name	Maximum Capacity Value	Minimum Capacity Value	Range of Capacity Values	Estimated Cost Bureau of Reclamation, 1994	Estimated Cost Bureau of Reclamation, 1938	Reason Not Constructed	Additional Reason Not Constructed	Maximum Crest Water Surface Elevation	Minimum Crest Water Surface Elevation	TR	Township	Range	County	HUC No.	Subbasin Name	Quad. Name	Location Unknown
Unnamed	NA	NA	NA							05N13E	05N	13E	CAMAS	17050113	SOUTH FORK BOISE	MARSHALL PEAK	
Unnamed	NA	NA	NA							03N14E	03N	14E	CAMAS	17050113	SOUTH FORK BOISE	SYDNEY BUTTE	
Black Canyon	180,000	500	500-180000							07N01W	07N	01W	GEM	17050122	PAYETTE	NORTHEAST EMMETT	
Big Payette Lake							Expansion precluded due to recreational area			18N03E	18N	03E	Valley	17050123	NORTH FORK PAYETTE	MCCALL	
Little Payette Lake	63,000	37,000	37000-63000				Enlarged site plans unfavorable due to geology			18N03E	18N	03E	VALLEY	17050123	NORTH FORK PAYETTE	MCCALL	
Upper Payette Lake	98,000	37,000	37000-98000		\$600,000	Relocate forest highway	Unfavorable geology, Garden Valley site preferred			21N04E	21N	04E	VALLEY	17050123	NORTH FORK PAYETTE	BLACK TIP	
Anderson Creek	51,000	51,000	51,000							09N04E	09N	04E	BOISE	17050121	MIDDLE FORK PAYETTE	GARDEN VALLEY	
Beaver Creek	NA	NA	NA				Smiths Ferry- Scriver Creek complex preferred			11N03E	11N	03E	VALLEY	17050123	NORTH FORK PAYETTE	SMITHS FERRY	
Big Creek	400,000	400,000	400,000														X
Big Eddy	NA	NA	NA				Smiths Ferry- Scriver Creek complex preferred			11N03E	11N	03E	VALLEY	17050123	NORTH FORK PAYETTE	SMITHS FERRY	
Big Willow Creek	313,000	310,000	310000-313000				Infrastructure			08N03W	08N	03W	PAYETTE	17050122	PAYETTE	SHEEP RIDGE	
Birding Island	175,000	175,000	175,000							08N04W	08N	04W	PAYETTE	17050122	PAYETTE	BIRDING ISLAND	
Bissel Creek	200,000	153,500	153500-200000	\$189,000,000		Raise groundwater table	High pumping cost	2690		07N02W	07N	02W	GEM	17050122	PAYETTE	NORTHWEST EMMETT	
Boulder Creek	93,000	93,000	93,000							18N04E	18N	04E	VALLEY	17050123	NORTH FORK PAYETTE	FITSUM SUMMIT	
Browns Pond	92,000	92,000	92,000														X
Cloverleaf	NA	NA	NA				Garden Valley site preferred			09N07E	09N	07E	BOISE	17050120	SOUTH FORK PAYETTE	SCOTT CREEK	
Crystal School	91,000	91,000	91,000							09N05W	09N	05W	PAYETTE	17050122	PAYETTE	PAYETTE	
Deadwood River	NA	NA	NA				Garden Valley site preferred			11N07E	11N	07E	VALLEY	17050120	SOUTH FORK PAYETTE	DEADWOOD RESERVOIR	
Dry Buck Creek	380,000	380,000	380,000							09N02E	09N	02E	BOISE	17050122	PAYETTE	DRY BUCK VALLEY	
Eightmile	NA	NA	NA							10N09E	10N	09E	BOISE	17050120	SOUTH FORK PAYETTE	MILLER MOUNTAIN EAST	
Fogus Site	NA	NA	NA				Wilderness recommendation area, economically			10N10E	10N	10E	BOISE	17050120	SOUTH FORK PAYETTE	GRANDJEAN	
Garden Valley	576,000	576,000	576,000							09N04E	09N	04E	BOISE	17050121	MIDDLE FORK PAYETTE	GARDEN VALLEY	
Gold Fork	930,000	930,000	930,000							16N04E	16N	04E	VALLEY	17050123	NORTH FORK PAYETTE	SLOANS POINT	
Grassy Flat	32,000	32,000	32,000							12N04E	12N	04E	VALLEY	17050123	NORTH FORK PAYETTE	SKUNK CREEK SUMMIT	
Green Mountain	24,000	24,000	24,000							17N05E	17N	05E	VALLEY	17050123	NORTH FORK PAYETTE	BLACKMARE	
Haw Creek	35,000	33,000	33000-35000							07N01W	07N	01W	GEM	17050122	PAYETTE	NORTHEAST EMMETT	
High Valley	1,760,000	1,760,000	1,760,000							10N02E	10N	02E	GEM	17050122	PAYETTE	HIGH VALLEY	
Horsethief Basin	75,000	75,000	75,000							14N04E	14N	04E	VALLEY	17050123	NORTH FORK PAYETTE	EAGLE NEST	
Kennally Creek	351,000	330,000	330000-351000							16N04E	16N	04E	VALLEY	17050123	NORTH FORK PAYETTE	SLOANS POINT	
Little Willow Creek	85,000	1,000	1000-85000				Infrastructure	Runoff controlled by upstream reservoir		09N03W	09N	03W	PAYETTE	17050122	PAYETTE	HOLLAND GULCH	
Lower Scriver Creek	44,000	44,000	44,000							10N04E	10N	04E	BOISE	17050121	MIDDLE FORK PAYETTE	PYLE CREEK	
Lower Shafer Creek	34,000	34,000	34,000							06N03E	06N	03E	BOISE	17050122	PAYETTE	HORSESHOE BEND	
Lower Squaw Creek	550,000	550,000	550,000							08N01E	08N	01E	GEM	17050122	PAYETTE	WEBB CREEK	
Mains	NA	NA	NA				Smiths Ferry- Scriver Creek complex preferred			10N03E	10N	03E	VALLEY	17050123	NORTH FORK PAYETTE	PACKER JOHN MOUNTAIN	
Middle Fork Payette River	1,600,000	1,600,000	1,600,000							10N04E	10N	04E	BOISE	17050121	MIDDLE FORK PAYETTE	PYLE CREEK	
Montour Valley	32,000	32,000	32,000							07N01E	07N	01E	GEM	17050122	PAYETTE	MONTOUR	

Dam Name	Maximum Capacity Value	Minimum Capacity Value	Range of Capacity Values	Estimated Cost Bureau of Reclamation, 1994	Estimated Cost Bureau of Reclamation, 1938	Reason Not Constructed	Additional Reason Not Constructed	Maximum Crest Water Surface Elevation	Minimum Crest Water Surface Elevation	TR	Township	Range	County	HUC No.	Subbasin Name	Quad. Name	Location Unknown
Pidgeon Flat	490,000	490,000	490,000														X
Round Valley	430,000	430,000	430,000			High canal sys. const. cost and low run-off				12N04E	12N	04E	VALLEY	17050123	NORTH FORK PAYETTE	SKUNK CREEK SUMMIT	
Sand Hollow	39,000	39,000	39,000							07N03W	07N	03W	GEM	17050122	PAYETTE	LETHA	
Scott Valley	131,000	131,000	131,000			Conflicts with storage in Cascade Reservoir				14N04E	14N	04E	VALLEY	17050123	NORTH FORK PAYETTE	EAGLE NEST	
Scriver Creek	NA	NA	NA							10N04E	10N	04E	BOISE	17050121	MIDDLE FORK PAYETTE	PACKER JOHN MOUNTAIN	
Slick Rock	35,000	35,000	35,000														X
Sweet	148,000	148,000	148,000							08N01E	08N	01E	GEM	17050122	PAYETTE	MONTOUR	
Tripod Creek	57,000	54,000	54000-57000							11N03E	11N	03E	VALLEY	17050123	NORTH FORK PAYETTE	SMITHS FERRY	
Upper Big Willow Creek	350,000	160,000	160000-350000							08N02W	08N	02W	PAYETTE	17050122	PAYETTE	HOG COVE BUTTE	
Upper Shafer Creek	93,000	93,000	93,000							06N02E	06N	02E	BOISE	17050122	PAYETTE	CARTWRIGHT CANYON	
Upper Squaw Creek	2,600,000	2,600,000	2,600,000							09N01E	09N	01E	GEM	17050122	PAYETTE	WEBB CREEK	
Warm Spring Creek	61,500	61,500	61,500							10N05E	10N	05E	BOISE	17050121	MIDDLE FORK PAYETTE	LIGHTNING RIDGE	
Wash Creek	55,000	55,000	55,000							08N04E	08N	04E	BOISE	17050120	SOUTH FORK PAYETTE	GARDEN VALLEY	
Alkali Creek	5,000	5,000	5,000			Inadequate runoff				09N02W	09N	02W	PAYETTE	17050122	PAYETTE	HOG COVE BUTTE	
Archie Creek	270,000	140,000	140000-270000			High unit cost	Road and game preserve			09N08E	09N	08E	BOISE	17050120	SOUTH FORK PAYETTE	JACKSON PEAK	
Big Pine Creek	110,000	110,000	110,000			Garden Valley site preferred				09N06E	09N	06E	BOISE	17050120	SOUTH FORK PAYETTE	GRIMES PASS	
Bogus Creek	33,000	33,000	33,000							11N03E	11N	03E	VALLEY	17050123	NORTH FORK PAYETTE	SMITHS FERRY	
Boiling Springs	70,000	70,000	70,000							11N05E	11N	05E	VALLEY	17050121	MIDDLE FORK PAYETTE	BOILING SPRING	
Bull Trout Lake	15,000	15,000	15,000			Unfavorable geology, possible excessive leakage				11N10E	11N	10E	BOISE	17050120	SOUTH FORK PAYETTE	BULL TROUT POINT	
Cabarton	1,400,000	1,400,000	66000-1400000		\$622,000 - \$950,000					13N04E	13N	04E	VALLEY	17050123	NORTH FORK PAYETTE	ALPHA	
Canyon Creek	33,000	33,000	33,000			High unit cost				10N10E	10N	10E	BOISE	17050120	SOUTH FORK PAYETTE	GRANDJEAN	
Casner Creek	142,000	142,000	142,000			High unit cost				09N09E	09N	09E	BOISE	17050120	SOUTH FORK PAYETTE	JACKSON PEAK	
Cottonwood Creek	50,000	50,000	50,000			Adjacent farm area				10N01E	10N	01E	GEM	17050122	PAYETTE	OLA	
Garden Valley	2,400,000	1,330,000	1330000-2400000		\$9,600,000					09N03E	09N	03E	BOISE	17050122	PAYETTE	BANKS	
Garden Valley Reregulating	8,000	8,000	8,000							09N03E	09N	03E	BOISE	17050122	PAYETTE	BANKS	
Gold Fork	80,000	79,700	79700-80000			High const. cost and conflict with irr. devel.				13N04E	13N	04E	VALLEY	17050123	NORTH FORK PAYETTE	SKUNK CREEK SUMMIT	
Grand Jean	90,000	88,000	88000-90000			Inundation of mining claims and high const. cost	Garden Valley site preferred			09N11E	09N	11E	BOISE	17050120	SOUTH FORK PAYETTE	GRANDJEAN	
Horseshoe Bend	600,000	480,000	480000-600000			Garden Valley site preferred				07N02E	07N	02E	BOISE	17050122	PAYETTE	MONTOUR	
Jake's Creek	3,800	3,800	3,800			Inadequate runoff				09N01W	09N	01W	PAYETTE	17050122	PAYETTE	SQUAW BUTTE	
Lowman	NA	NA	NA							09N07E	09N	07E	BOISE	17050120	SOUTH FORK PAYETTE	PINE FLAT	
MacIntyre Gulch	1,000	1,000	1,000			Runoff controlled by upstream reservoir				09N03W	09N	03W	PAYETTE	17050122	PAYETTE	SHEEP RIDGE	
Ola	93,000	50,000	50000-93000			Infrastructure and exist. irr. and dry year hydro.				09N01E	09N	01E	GEM	17050122	PAYETTE	OLA	
Oxbow Bend	70,000	60,000	60000-70000			Garden Valley site preferred				09N07E	09N	07E	BOISE	17050120	SOUTH FORK PAYETTE	PINE FLAT	
Peace Valley	13,000	13,000	13,000			High unit cost	Garden Valley site preferred			12N05E	12N	05E	VALLEY	17050121	MIDDLE FORK PAYETTE	BOILING SPRING	
Rocky Canyon	23,000	23,000	23,000							11N05E	11N	05E	VALLEY	17050121	MIDDLE FORK PAYETTE	SIXMILE POINT	
Sand Hollow	145,000	68,000	68000-145000			Infrastructure				07N04W	07N	04W	PAYETTE	17050122	PAYETTE	NEW PLYMOUTH	

Dam Name	Maximum Capacity Value	Minimum Capacity Value	Range of Capacity Values	Estimated Cost Bureau of Reclamation, 1994	Estimated Cost Bureau of Reclamation, 1938	Reason Not Constructed	Additional Reason Not Constructed	Maximum Crest Water Surface Elevation	Minimum Crest Water Surface Elevation	TR	Township	Range	County	HUC No.	Subbasin Name	Quad. Name	Location Unknown
Scott Creek	NA	NA	NA							10N07E	10N	07E	BOISE	17050120	SOUTH FORK PAYETTE	SCOTT CREEK	
Scott Valley	18,000	18,000	18,000			Small amount of storage and poss. leakage											X
Smith Ferry	95,000	95,000	95,000		\$2,300,000					11N03E	11N	03E	VALLEY	17050123	NORTH FORK PAYETTE	SMITHS FERRY	
Steep Creek	NA	NA	NA			Right of way				09N07E	09N	07E	BOISE	17050120	SOUTH FORK PAYETTE	LOWMAN	
Tamarack Falls	20,000	20,000	20,000			Innundated by Cascade Dam const.				16N03E	16N	03E	VALLEY	17050123	NORTH FORK PAYETTE	LONE TREE	
12GH 23	NA	NA	NA							11N05E	11N	05E	VALLEY	17050121	MIDDLE FORK PAYETTE	SIXMILE POINT	
12GH 24	NA	NA	NA			High unit costs	Garden Valley site preferred			10N05E	10N	05E	BOISE	17050121	MIDDLE FORK PAYETTE	PYLE CREEK	
12HG 11	NA	NA	NA							09N09E	09N	09E	BOISE	17050120	SOUTH FORK PAYETTE	TYEE MOUNTAIN	
12HG 13	NA	NA	NA							09N08E	09N	08E	BOISE	17050120	SOUTH FORK PAYETTE	LOWMAN	
12HG 21	NA	NA	NA							09N04E	09N	04E	BOISE	17050121	MIDDLE FORK PAYETTE	GARDEN VALLEY	
12HG 22	NA	NA	NA			Smiths Ferry- Scriver Creek complex preferred				09N03E	09N	03E	BOISE	17050123	NORTH FORK PAYETTE	BANKS	
Banks	NA	NA	NA							09N03E	09N	03E	BOISE	17050123	NORTH FORK PAYETTE	PACKER JOHN MOUNTAIN	
Banks Lower	NA	NA	NA			Infrastructure (railroad, highways, and towns)				08N03E	08N	03E	BOISE	17050122	PAYETTE	DRY BUCK VALLEY	
Banks to Horseshoe Bend	NA	NA	NA							08N03E	08N	03E	BOISE	17050122	PAYETTE	DRY BUCK VALLEY	
Big Creek	20,000	20,000	20,000							15N05E	15N	05E	VALLEY	17050123	NORTH FORK PAYETTE	ORO MOUNTAIN	
Big Falls	NA	NA	NA														X
Black Bear	NA	NA	NA														X
Box Creek	NA	NA	NA														X
Brush Creek	NA	NA	NA														X
Clear Creek	NA	NA	NA							10N08E	10N	08E	BOISE	17050120	SOUTH FORK PAYETTE	MILLER MOUNTAIN WEST	
Dead Horse Creek	NA	NA	NA														X
Deadwood Canyon	NA	NA	NA							09N07E	09N	07E	BOISE	17050120	SOUTH FORK PAYETTE	PINE FLAT	
Deer Creek	NA	NA	NA														X
Elk Lake	NA	NA	NA							09N11E	09N	11E	BOISE	17050120	SOUTH FORK PAYETTE	IDAHO MOUNTAIN	
Fall Creek	NA	NA	NA														X
Ferncroft	NA	NA	NA														X
Fisher Creek	NA	NA	NA														X
Grimes Pass	NA	NA	NA														X
High Valley	NA	NA	NA							09N01E	09N	01E	GEM	17050122	PAYETTE	OLA	
Jug Creek	NA	NA	NA														X
Kirkham Hot Springs	270,000	270,000	270,000							09N08E	09N	08E	BOISE	17050120	SOUTH FORK PAYETTE	LOWMAN	
Louie Creek	NA	NA	NA														X
North Fork	NA	NA	NA														X
Paddock Valley	NA	NA	NA														X
Pine Flat	NA	NA	NA			Garden Valley site preferred				08N06E	08N	06E	BOISE	17050120	SOUTH FORK PAYETTE	PINE FLAT	
Round Valley Upper	NA	NA	NA														

Dam Name	Maximum Capacity Value	Minimum Capacity Value	Range of Capacity Values	Estimated Cost Bureau of Reclamation, 1994	Estimated Cost Bureau of Reclamation, 1938	Reason Not Constructed	Additional Reason Not Constructed	Maximum Crest Water Surface Elevation	Minimum Crest Water Surface Elevation	TR	Township	Range	County	HUC No.	Subbasin Name	Quad. Name	Location Unknown
Shafer Creek	NA	NA	NA														X
Squaw Valley	NA	NA	NA							11N01E	11N	01E	GEM	17050122	PAYETTE	DODSON PASS	
Ten Mile	NA	NA	NA			High unit cost				10N10E	10N	10E	BOISE	17050120	SOUTH FORK PAYETTE	EIGHTMILE MOUNTAIN	
Warm Spring	NA	NA	NA			High unit cost				09N10E	09N	10E	BOISE	17050120	SOUTH FORK PAYETTE	EIGHTMILE MOUNTAIN	

V. Copies of Relevant Information

Copies of relevant information used to complete this literature report are located in, and can be viewed at, Reclamation's Snake River Area Office library.

Appendix E

MODSIM Model Set-up, Assumptions, and Sensitivity Analysis

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APPENDIX E

MODSIM Model Set-up, Assumptions, and Sensitivity Analysis

Within the secondary screening process, the Boise-Payette monthly time-step MODSIM model was used to refine the initial hydrologic analysis. Available water records documented by USGS from 1928 through 2000 were used as model input.

A limited number of storage site locations were modeled to evaluate the hydrologic refill potential of on-stream and off-stream storage opportunities located within the major segments of the Boise and Payette River basins. These included:

- Big Pine Creek (South Fork Payette)
- Bissel Creek (Lower Payette)
- Boiling Springs (Middle Fork Payette)
- Cabarton (North Fork Payette)
- Casey Ranch (Upper South Fork Boise)
- Dry Creek (Lower Boise)
- Gold Fork (North Fork Payette)
- Moores Flat (South Fork Boise)
- Ola (Squaw Creek)
- Firebird (Lower Boise)
- Rabbit Creek (North Fork Boise)
- South Fork Boise River (South Fork Boise)
- Twin Springs (Middle Fork Boise)
- Upper Shafer Creek (South Fork Payette)
- Upper Squaw Creek (Lower Payette)
- Wash Creek (South Fork Payette)
- Yuba (Middle Fork Boise)

Each specific potential candidate site are represented by these 17 MODSIM locations because they are spatially scattered throughout each basin and within each of the major tributaries.

Modeling Assumptions

Since 1992, Reclamation and Colorado State University (CSU) have jointly revised the MODSIM river simulation model to address various river system operation analyses requirements. The MODSIM model has proven to be a highly reliable planning level tool, however, it is important to note that the assumptions to the model are critical to ensuring accurate results.

Natural flows (referred to as “gains” in the MODSIM model) for new storage sites in ungaged areas are based on the percentage of drainage area at the new storage site relative to the gains that are in the existing model. Return flows to the system from water stored at sites studied in this assessment are not estimated. This conservative assumption provides a conservative reinforcement to the intent of not impacting existing users, rights, contracts, or minimum flows.

Important assumptions used in the MODSIM analysis included: 1) no adverse impact of existing water rights or contracts, and 2) maintenance of minimum flow targets, whether statutory, policy-driven, or established as general goals. The second assumption is conservative in that existing minimum flow targets can be superseded by future consumptive water uses according to State law.

In the MODSIM model, the delivery distribution curve (Figure E-1) is based on current release patterns from Lucky Peak, which reflect high summer integrated demands associated with either future DCM&I or irrigation uses (Figure E-1). Water delivered to Payette River users assumes the same delivery distribution curve used in the Boise River basin.

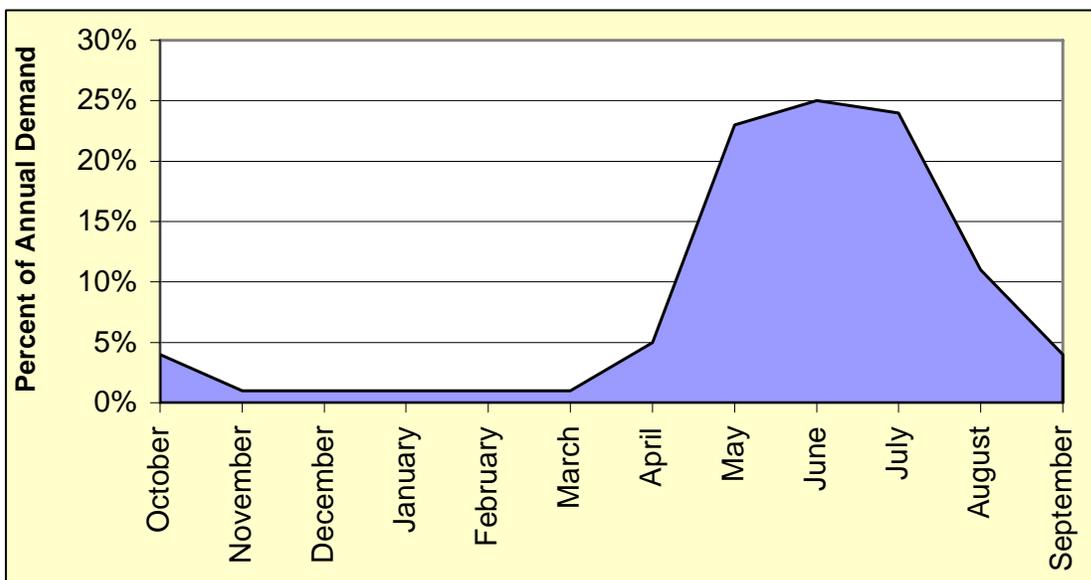


Figure E-1. Delivery Distribution Curve for Potential Candidate Sites

MODSIM assumed that water to meet future demands will be diverted first, where possible, before it is stored. New reservoir storage space was assumed to be completely active (total volume of dead storage in the existing reservoirs represents less than 2 percent of the total capacity [see Table 1-2 in the main assessment report]). In addition, the model assumed that water can be diverted and stored year-round with no seasonal limitations. Finally, no flood control curves were applied to new storage sites because these curves are unknown at this time.

Modeling Scenarios and Sensitivity Analysis

Hydrologic analysis using MODSIM was an iterative process that included several different modeling scenarios. Following is a description of initial modeling scenarios.

- The first modeling scenario evaluated new storage sites using a uniform delivery distribution. This modeling scenario was revised to improve the refill potential of new storage sites by better utilizing high runoff periods. This modeling scenario evaluated the refill potential of new storage sites (listed above) based on the published storage capacity previously identified.

- The second modeling scenario evaluated new storage sites using the non-uniform delivery distribution. This modeling scenario also abandoned previously identified storage capacities and used a storage capacity based on best available information and the results of the first modeling scenario to optimize the refill potential. This modeling scenario provided better insight in understanding the refill potential in the Boise and Payette River basins.
- A third modeling scenario was performed to attempt to determine the “maximum” amount of water that could be stored at each site. This model run placed an “infinite demand” at the storage site that could only be met after existing water rights were met. The results of this analysis indicated that there were significant impacts to existing storage facilities; therefore, this scenario was abandoned from further consideration. This modeling scenario was insightful because it demonstrated how a new, junior water right could significantly impact senior water rights due to a change in the dynamics of the existing, complex reservoir system.
- The final modeling scenario evaluated new storage sites using the non-uniform delivery distribution and a refined modeled storage capacity based on previous modeling scenarios to optimize the refill potential. In this scenario, both a natural flow right at the point of diversion and a storage right were simulated.

In general, the level of detail provided by MODSIM is beyond an pre-appraisal, reconnaissance-level assessment. However, because Reclamation has invested considerable time in developing and calibrating MODSIM, the planning team utilized the model by making some general assumptions to obtain reconnaissance-level hydrologic yields. To ensure accurate results, subsequent hydrologic analysis using MODSIM should include the following.

- Refined target volume
- Flood control curves for new reservoirs
- Estimate return flows
- Channel conveyance analyses
- Refined point of diversion and delivery

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Appendix F

SWG Relative Importance Value Input

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Appendix G

Summary of Ranking Constraint Criteria

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APPENDIX G

Summary of Ranking Constraint Criteria

This appendix provides a summary of scores derived from the Constraints Analysis. A complete documentation of scores will be included in the Final Report.

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Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **ALEXANDER FLATS - 100,000 AF**

High 1/3
 Mid 1/3
 Low 1/3
 None

Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable) <input checked="" type="radio"/> 4 X 1 = 4	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/> 4 X 3.1 = 12	
	Displaces other developed uses		<input checked="" type="radio"/> 4 X 2.7 = 11	
	Displaces irrigated agriculture		<input checked="" type="radio"/> 4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	<input type="radio"/> 1 X 1.8 = 2	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.9 = 8	

Socioeconomic Factors Score: 19 49

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/> 3 X 3.0 = 9	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input type="radio"/> 1 X 3.0 = 3	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 X 3.1 = 3	

Environmental Factors Score: 11 34

Total Score: 30 83

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **ANDERSON CREEK - 50 ,000 AF**



		Level 2 Analysis				Relative
Factors	Criteria	Level 2 Data	Result Summary Score		Importance	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)		
				4 X 1 =	4

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4 X 3.1 =	12
	Displaces other developed uses			4 X 2.7 =	11
	Displaces irrigated agriculture			4 X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF		4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		4 X 2.1 =	8
	Displaces transmission line	Miles /10,000 AF		4 X 1.9 =	8

Socioeconomic Factors Score: 28 65

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		1 X 3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2 X 3.0 =	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4 X 3.1 =	12

Environmental Factors Score: 19 59

Total Score: 47 123

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ANDERSON CREEK - 75 .000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 4 X 1 = 4	4
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	12
	Displaces other developed uses		4 X 2.7 = 11	11
	Displaces irrigated agriculture		4 X 3.1 = 12	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	4 X 2.1 = 8	8
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	8

Socioeconomic Factors Score: 28 65

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 = 3	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		4 X 3.0 = 12	12
	<input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	12

Environmental Factors Score: 19 59

Total Score: 47 123

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **ANDERSON CREEK - 100,000 AF**



		Level 2 Analysis				Relative
Factors	Criteria	Level 2 Data	Result Summary Score		Importance	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)		
				4 X 1 =	4

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4 X 3.1 =	12
	Displaces other developed uses			4 X 2.7 =	11
	Displaces irrigated agriculture			4 X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF		4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		4 X 2.1 =	8
	Displaces transmission line	Miles /10,000 AF		4 X 1.9 =	8

Socioeconomic Factors Score: 28 65

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		1 X 3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2 X 3.0 =	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4 X 3.1 =	12

Environmental Factors Score: 19 59

Total Score: 47 123

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **ANDERSON CREEK - 125,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 	4
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		12
	Displaces other developed uses			11
	Displaces irrigated agriculture			12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		6
	Eliminates noted fishing reach	Miles /10,000 AF		7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		8
	Displaces transmission line	Miles /10,000 AF		8

Socioeconomic Factors Score: 28 65

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		12

Environmental Factors Score: 20 62

Total Score: 48 126

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **ANDERSON CREEK - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 	4
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		12
	Displaces other developed uses			11
	Displaces irrigated agriculture			12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		6
	Eliminates noted fishing reach	Miles /10,000 AF		7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		8
	Displaces transmission line	Miles /10,000 AF		8

Socioeconomic Factors Score: 28 **65**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area			12
	Designated Recreation River	Miles /10,000 AF		12

Environmental Factors Score: 20 **62**

Total Score: 48 **126**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **ANDERSON CREEK - 200,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	●	4	X 1 =	4
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●	4	X 3.1 =	12
	Displaces other developed uses		●	4	X 2.7 =	11
	Displaces irrigated agriculture		●	4	X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	●	4	X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	●	4	X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	●	4	X 2.1 =	8
	Displaces transmission line	Miles /10,000 AF	●	4	X 1.9 =	8

Socioeconomic Factors Score: 28 **65**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	●	4	X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐	2	X 3.0 =	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◐	2	X 3.0 =	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	●	4	X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		●	4	X 3.0 =	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF	●	4	X 3.1 =	12

Environmental Factors Score: 20 **62**

Total Score: 48 **126**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ANDERSON CREEK - 250 .000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			<i>Result 1 to 4 (Least to Most Suitable)</i> 	4

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 =	12
	Displaces other developed uses		● 4 X 2.7 =	11
	Displaces irrigated agriculture		● 4 X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	● 4 X 2.1 =	8
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 =	8

Socioeconomic Factors Score: 28 **65**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐ 2 X 3.0 =	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◐ 2 X 3.0 =	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		● 4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 =	12

Environmental Factors Score: 20 **62**

Total Score: 48 **126**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **ANDERSON CREEK - 300,000 AF**



		Level 2 Analysis				Relative
Factors	Criteria	Level 2 Data	Result Summary Score		Importance	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)		
				4 X 1 =	4

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4 X 3.1 =	12
	Displaces other developed uses			4 X 2.7 =	11
	Displaces irrigated agriculture			4 X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF		4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		4 X 2.1 =	8
	Displaces transmission line	Miles /10,000 AF		4 X 1.9 =	8

Socioeconomic Factors Score: 28 65

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2 X 3.0 =	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2 X 3.0 =	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4 X 3.1 =	12

Environmental Factors Score: 20 62

Total Score: 48 126

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ANDERSON RANCH - 29 ,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 	3	X	1	=	3
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		1	X	3.1	=	3
	Displaces other developed uses			1	X	2.7	=	3
	Displaces irrigated agriculture			4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		1	X	1.5	=	2
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF		1	X	1.9	=	2

Socioeconomic Factors Score: 14 **33**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		1	X	3.3	=	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		3	X	3.0	=	9
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		1	X	3.0	=	3
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		1	X	3.1	=	3

Environmental Factors Score: 12 **36**

Total Score: 26 **69**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ARCHIE CREEK - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition			<i>Result 1 to 4 (Least to Most Suitable)</i>				
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	●	3	X	1	= 3

Socioeconomic Factors							
Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●	4	X	3.1	= 12
	Displaces other developed uses		●	4	X	2.7	= 11
	Displaces irrigated agriculture		●	4	X	3.1	= 12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	●	4	X	1.5	= 6
	Eliminates noted fishing reach	Miles /10,000 AF	●	4	X	1.8	= 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	○	1	X	2.1	= 2
	Displaces transmission line	Miles /10,000 AF	●	4	X	1.9	= 8
<u>Socioeconomic Factors Score:</u>				25			59

Environmental Factors							
Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	○	1	X	3.3	= 3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	●	2	X	3.0	= 6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	●	2	X	3.0	= 6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	○	1	X	3.0	= 3
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		●	4	X	3.0	= 12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	○	1	X	3.1	= 3
<u>Environmental Factors Score:</u>				11			33

<u>Total Score:</u>				36			92
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Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ARCHIE CREEK - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 3 X 1 = 3	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	1 X 3.3 = 3	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	2 X 3.0 = 6	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	1 X 3.0 = 3	
	Located in one of the following:			
	<input checked="" type="checkbox"/> Designated Roadless Area		1 X 3.0 = 3	
	<input type="checkbox"/> Research Natural Area			
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	1 X 3.1 = 3	

Environmental Factors Score: 8 **24**

Total Score: 33 **83**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ARCHIE CREEK - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4</i> <i>(Least to Most Suitable)</i> 	3	X	1	=	3
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		1	X	2.1	=	2
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		1	X	3.3	=	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		1	X	3.0	=	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			1	X	3.0	=	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		1	X	3.1	=	3

Environmental Factors Score: 8 **24**

Total Score: 33 **83**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ARCHIE CREEK - 125,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 3 X 1 = 3	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	1 X 3.3 = 3	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	2 X 3.0 = 6	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	1 X 3.0 = 3	
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		1 X 3.0 = 3	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	1 X 3.1 = 3	

Environmental Factors Score: 8 **24**

Total Score: 33 **83**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ARCHIE CREEK - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	●	3	X	1	=	3
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●	4	X	3.1	=	12
	Displaces other developed uses		●	4	X	2.7	=	11
	Displaces irrigated agriculture		●	4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	●	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	●	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	○	1	X	2.1	=	2
	Displaces transmission line	Miles /10,000 AF	●	4	X	1.9	=	8

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	○	1	X	3.3	=	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐	2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◐	2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	○	1	X	3.0	=	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		○	1	X	3.0	=	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	○	1	X	3.1	=	3

Environmental Factors Score: 8 **24**

Total Score: 33 **83**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ARCHIE CREEK - 200,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 	3	X	1	=	3
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 26 61

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		1	X	3.3	=	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		1	X	3.0	=	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			1	X	3.0	=	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		1	X	3.1	=	3

Environmental Factors Score: 8 24

Total Score: 34 85

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ARROWROCK - 6,300 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4</i> <i>(Least to Most Suitable)</i> 3 X 1 = 3				
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12				
	Displaces other developed uses		4 X 2.7 = 11				
	Displaces irrigated agriculture		4 X 3.1 = 12				
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6				
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7				
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4				
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8				

Socioeconomic Factors Score: 26 **61**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	1 X 3.3 = 3				
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12				
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	1 X 3.0 = 3				
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	1 X 3.0 = 3				
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		1 X 3.0 = 3				
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	1 X 3.1 = 3				

Environmental Factors Score: 9 **27**

Total Score: 35 **88**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BARBER FLATS - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	●	4	X 1 =	4
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●	4	X 3.1 =	12
	Displaces other developed uses		●	4	X 2.7 =	11
	Displaces irrigated agriculture		●	4	X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	●	4	X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	●	4	X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	○	1	X 2.1 =	2
	Displaces transmission line	Miles /10,000 AF	●	4	X 1.9 =	8

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	●	4	X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	○	1	X 3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◐	2	X 3.0 =	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	●	4	X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		●	4	X 3.0 =	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF	○	1	X 3.1 =	3

Environmental Factors Score: 16 **49**

Total Score: 41 **108**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **BIG PAYETTE LAKE - 30,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 3 X 1 = 3	3
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	1 X 3.1 = 3	3
	Displaces other developed uses		4 X 2.7 = 11	11
	Displaces irrigated agriculture		4 X 3.1 = 12	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	1 X 1.5 = 2	2
	Eliminates noted fishing reach	Miles /10,000 AF	1 X 1.8 = 2	2
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	4
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	8

Socioeconomic Factors Score: 17 41

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	1 X 3.0 = 3	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		4 X 3.0 = 12	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area			
	Designated Recreation River	Miles /10,000 AF	1 X 3.1 = 3	3

Environmental Factors Score: 18 55

Total Score: 35 97

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BIG PINE CREEK - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	●	4	X	1	=	4
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●	4	X	3.1	=	12
	Displaces other developed uses		●	4	X	2.7	=	11
	Displaces irrigated agriculture		●	4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	●	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	●	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	○	1	X	2.1	=	2
	Displaces transmission line	Miles /10,000 AF	●	4	X	1.9	=	8

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	○	1	X	3.3	=	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐	2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◐	2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	○	1	X	3.0	=	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		○	1	X	3.0	=	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	○	1	X	3.1	=	3

Environmental Factors Score: 8 **24**

Total Score: 33 **83**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BIG PINE CREEK - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	●	4	X	1	=	4
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●	4	X	3.1	=	12
	Displaces other developed uses		●	4	X	2.7	=	11
	Displaces irrigated agriculture		●	4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	○	1	X	1.5	=	2
	Eliminates noted fishing reach	Miles /10,000 AF	●	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	◐	2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF	●	4	X	1.9	=	8

Socioeconomic Factors Score: 23 **56**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	○	1	X	3.3	=	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐	2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◐	2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	○	1	X	3.0	=	3
	Located in one of the following:							
	<input checked="" type="checkbox"/> Designated Roadless Area		○	1	X	3.0	=	3
	<input type="checkbox"/> Research Natural Area							
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	○	1	X	3.1	=	3

Environmental Factors Score: 8 **24**

Total Score: 31 **81**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **BIG PINE CREEK - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	●				
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●				
	Displaces other developed uses		●				
	Displaces irrigated agriculture		●				
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	○				
	Eliminates noted fishing reach	Miles /10,000 AF	●				
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	◐				
	Displaces transmission line	Miles /10,000 AF	●				

Socioeconomic Factors Score: 23 56

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	○				
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐				
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◐				
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	○				
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input checked="" type="checkbox"/> Research Natural Area		○				
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	○				

Environmental Factors Score: 8 24

Total Score: 31 81

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **BIG PINE CREEK - 125,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	●				
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●				
	Displaces other developed uses		●				
	Displaces irrigated agriculture		●				
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	○				
	Eliminates noted fishing reach	Miles /10,000 AF	●				
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	◐				
	Displaces transmission line	Miles /10,000 AF	●				

Socioeconomic Factors Score: 23 56

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	○				
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐				
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◐				
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	○				
	Located in one of the following:						
	<input checked="" type="checkbox"/> Designated Roadless Area		○				
	<input checked="" type="checkbox"/> Research Natural Area		○				
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	○				

Environmental Factors Score: 8 24

Total Score: 31 81

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **BIG PINE CREEK - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage		3	X	1	=	3
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		1	X	1.5	=	2
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 23 56

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		1	X	3.3	=	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		1	X	3.0	=	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input checked="" type="checkbox"/> Research Natural Area			1	X	3.0	=	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		1	X	3.1	=	3

Environmental Factors Score: 8 24

Total Score: 31 81

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **BIG PINE CREEK - 200,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)		3	X 1 = 3
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage			1	X 3.1 = 3
	Displaces other developed uses				4	X 2.7 = 11
	Displaces irrigated agriculture				4	X 3.1 = 12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF			1	X 1.5 = 2
	Eliminates noted fishing reach	Miles /10,000 AF			4	X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF			2	X 2.1 = 4
	Displaces transmission line	Miles /10,000 AF			4	X 1.9 = 8

Socioeconomic Factors Score: 20 47

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF			1	X 3.3 = 3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF			2	X 3.0 = 6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF			2	X 3.0 = 6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF			1	X 3.0 = 3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input checked="" type="checkbox"/> Research Natural Area				1	X 3.0 = 3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF			1	X 3.1 = 3

Environmental Factors Score: 8 24

Total Score: 28 71

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BIG PINE CREEK - 250,000 AF**



		Level 2 Analysis			Relative Importance
Factors	Criteria	Level 2 Data	Result Summary Score		

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 3 X 1 = 3	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		1	X	3.1	=	3
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		1	X	1.5	=	2
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 20 47

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		1	X	3.3	=	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		1	X	3.0	=	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input checked="" type="checkbox"/> Research Natural Area			1	X	3.0	=	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		1	X	3.1	=	3

Environmental Factors Score: 8 24

Total Score: 28 71

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BIG PINE CREEK - 300,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 	3	X	1	=	3
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		1	X	3.1	=	3
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		1	X	1.5	=	2
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 20 **47**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		1	X	3.3	=	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		1	X	3.0	=	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input checked="" type="checkbox"/> Research Natural Area			1	X	3.0	=	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		1	X	3.1	=	3

Environmental Factors Score: 8 **24**

Total Score: 28 **71**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **BIG WILLOW CREEK - 50 ,000 AF**

High 1/3
 Mid 1/3
 Low 1/3
 None

Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable) <input type="radio"/> 1 X 1 = 1	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 = 12	
	Displaces other developed uses		● 4 X 2.7 = 11	
	Displaces irrigated agriculture		● 4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	● 4 X 2.1 = 8	
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 = 8	

Socioeconomic Factors Score: 28 65

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	● 4 X 3.0 = 12	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	○ 1 X 3.0 = 3	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		● 4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 = 12	

Environmental Factors Score: 21 65

Total Score: 49 129

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **BIG WILLOW CREEK - 75 .000 AF**



		Level 2 Analysis			Relative
Factors	Criteria	Level 2 Data	Result Summary Score	Importance	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">○</div> <div style="margin-right: 10px;">1</div> <div style="margin-right: 10px;">X</div> <div style="margin-right: 10px;">1</div> <div style="margin-right: 10px;">=</div> <div>1</div> </div>	<i>Result 1 to 4 (Least to Most Suitable)</i>
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●	4	X	3.1	=	12
	Displaces other developed uses		●	4	X	2.7	=	11
	Displaces irrigated agriculture		●	4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	●	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	●	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	●	4	X	2.1	=	8
	Displaces transmission line	Miles /10,000 AF	●	4	X	1.9	=	8

Socioeconomic Factors Score: 28 **65**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	●	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐	2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	○	1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	●	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		●	4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area							
	Designated Recreation River	Miles /10,000 AF	●	4	X	3.1	=	12

Environmental Factors Score: 19 **59**

Total Score: 47 **123**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BIG WILLOW CREEK - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	=	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7	=	11
	Displaces irrigated agriculture		<input type="radio"/>	2	X	3.1	=	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	2.1	=	8
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.9	=	8

Socioeconomic Factors Score: 26 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/>	2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	=	12

Environmental Factors Score: 19 **59**

Total Score: 45 **117**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **BIG WILLOW CREEK - 125,000 AF**

High 1/3
 Mid 1/3
 Low 1/3
 None

Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable) <input type="radio"/> 1 X 1 = 1	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 = 12	
	Displaces other developed uses		● 4 X 2.7 = 11	
	Displaces irrigated agriculture		◐ 2 X 3.1 = 6	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	● 4 X 2.1 = 8	
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 = 8	

Socioeconomic Factors Score: 26 59

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐ 2 X 3.0 = 6	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	○ 1 X 3.0 = 3	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		● 4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 = 12	

Environmental Factors Score: 19 59

Total Score: 45 117

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **BIG WILLOW CREEK - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable) <input type="radio"/> 1 <input checked="" type="radio"/> X 1 = 1			
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 = 12			
	Displaces other developed uses		● 4 X 2.7 = 11			
	Displaces irrigated agriculture		◐ 2 X 3.1 = 6			
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 = 6			
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 = 7			
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	● 4 X 2.1 = 8			
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 = 8			

Socioeconomic Factors Score: 26 59

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 = 13			
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐ 2 X 3.0 = 6			
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	○ 1 X 3.0 = 3			
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 = 12			
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		● 4 X 3.0 = 12			
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 = 12			

Environmental Factors Score: 19 59

Total Score: 45 117

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BIG WILLOW CREEK - 200 .000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1 =	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1 =	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7 =	11
	Displaces irrigated agriculture		<input type="radio"/>	2	X	3.1 =	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	2.1 =	8
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.9 =	8

Socioeconomic Factors Score: 26 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/>	2	X	3.0 =	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1	X	3.0 =	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/>	4	X	3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1 =	12

Environmental Factors Score: 19 **59**

Total Score: 45 **117**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **BIG WILLOW CREEK - 250 ,000 AF**



		Level 2 Analysis			Relative
Factors	Criteria	Level 2 Data	Result Summary Score	Importance	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">○</div> <div style="margin-right: 10px;">1</div> <div style="margin-right: 10px;">X</div> <div style="margin-right: 10px;">1</div> <div style="margin-right: 10px;">=</div> <div>1</div> </div>	<i>Result 1 to 4 (Least to Most Suitable)</i>
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●	4	X	3.1	=	12
	Displaces other developed uses		●	4	X	2.7	=	11
	Displaces irrigated agriculture		◐	2	X	3.1	=	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	●	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	●	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	●	4	X	2.1	=	8
	Displaces transmission line	Miles /10,000 AF	●	4	X	1.9	=	8

Socioeconomic Factors Score: 26 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	●	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐	2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	○	1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	●	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		●	4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area							
	Designated Recreation River	Miles /10,000 AF	●	4	X	3.1	=	12

Environmental Factors Score: 19 **59**

Total Score: 45 **117**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - **BIG WILLOW CREEK - 300,000 AF**



Level 2 Analysis				
Factors	Criteria	Level 2 Data	Result Summary Score	Relative Importance

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right;">Result 1 to 4 (Least to Most Suitable)</div> <input type="radio"/> 1 X 1 = 1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/> 4 X 3.1 = 12
	Displaces other developed uses		<input checked="" type="radio"/> 4 X 2.7 = 11
	Displaces irrigated agriculture		<input type="radio"/> 2 X 3.1 = 6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/> 4 X 1.5 = 6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 2.1 = 8
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.9 = 8
Socioeconomic Factors Score:			26 59

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 2 X 3.0 = 6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/> 2 X 3.0 = 6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 X 3.0 = 12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.1 = 12
Environmental Factors Score:			20 62

Total Score: **46** **120**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BIG WILLOW CREEK - 400 .000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)	○	1	X 1 = 1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		●	4	X 3.1 = 12
	Displaces other developed uses			●	4	X 2.7 = 11
	Displaces irrigated agriculture			◐	2	X 3.1 = 6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		●	4	X 1.5 = 6
	Eliminates noted fishing reach	Miles /10,000 AF		●	4	X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		●	4	X 2.1 = 8
	Displaces transmission line	Miles /10,000 AF		●	4	X 1.9 = 8

Socioeconomic Factors Score: 26 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		●	4	X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		◐	2	X 3.0 = 6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		◐	2	X 3.0 = 6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		●	4	X 3.0 = 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			●	4	X 3.0 = 12
	<input type="checkbox"/> Research Natural Area			●	4	X 3.0 = 12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		●	4	X 3.1 = 12

Environmental Factors Score: 20 **62**

Total Score: 46 **120**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BIRDING ISLAND - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="display: flex; justify-content: space-around;"> Result 1 to 4 (Least to Most Suitable) </div>	○	1	X	1 =	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		●	4	X	3.1 =	12
	Displaces other developed uses			●	4	X	2.7 =	11
	Displaces irrigated agriculture			○	1	X	3.1 =	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		●	4	X	1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF		●	4	X	1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		◐	2	X	2.1 =	4
	Displaces transmission line	Miles /10,000 AF		●	4	X	1.9 =	8

Socioeconomic Factors Score: 23 51

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		●	4	X	3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		○	1	X	3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		○	1	X	3.0 =	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		●	4	X	3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			●	4	X	3.0 =	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area			●	4	X	3.1 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		●	4	X	3.1 =	12

Environmental Factors Score: 18 56

Total Score: 41 107

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BIRDING ISLAND - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition		<i>Result 1 to 4 (Least to Most Suitable)</i>					
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	○	1	X	1 =	1

Socioeconomic Factors							
Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●	4	X	3.1 =	12
	Displaces other developed uses		●	4	X	2.7 =	11
	Displaces irrigated agriculture		○	1	X	3.1 =	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	●	4	X	1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	●	4	X	1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	◐	2	X	2.1 =	4
	Displaces transmission line	Miles /10,000 AF	●	4	X	1.9 =	8
<u>Socioeconomic Factors Score:</u>						23	51

Environmental Factors							
Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	●	4	X	3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	○	1	X	3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	○	1	X	3.0 =	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	●	4	X	3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		●	4	X	3.0 =	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF	●	4	X	3.1 =	12
<u>Environmental Factors Score:</u>						18	56

<u>Total Score:</u>						41	107
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Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - BIRDING ISLAND - 100,000 AF



		Level 2 Analysis				Relative Importance
Factors	Criteria	Level 2 Data	Result Summary Score			

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)		
			<input type="radio"/>	1 X 1 =	1

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4 X 3.1 =	12	
	Displaces other developed uses		<input checked="" type="radio"/>	4 X 2.7 =	11	
	Displaces irrigated agriculture		<input type="radio"/>	1 X 3.1 =	3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4 X 1.5 =	6	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 1.8 =	7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	2 X 2.1 =	4	
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 1.9 =	8	
Socioeconomic Factors Score:					23	51

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 3.3 =	13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/>	1 X 3.0 =	3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1 X 3.0 =	3	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4 X 3.0 =	12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/>	4 X 3.0 =	12	
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area					
	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 3.1 =	12	
Environmental Factors Score:					18	56

Total Score: 41 107

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BIRDING ISLAND - 125,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	=	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7	=	11
	Displaces irrigated agriculture		<input type="radio"/>	1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.9	=	8

Socioeconomic Factors Score: 23 **51**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/>	1	X	3.0	=	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	=	12

Environmental Factors Score: 18 **56**

Total Score: 41 **107**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BIRDING ISLAND - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/> 1 X 1 = 1	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 =	12
	Displaces other developed uses		● 4 X 2.7 =	11
	Displaces irrigated agriculture		○ 1 X 3.1 =	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	◐ 2 X 2.1 =	4
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 =	8

Socioeconomic Factors Score: 23 51

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	○ 1 X 3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	○ 1 X 3.0 =	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		● 4 X 3.0 =	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area			
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 =	12

Environmental Factors Score: 18 56

Total Score: 41 107

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - BIRDING ISLAND - 200,000 AF



		Level 2 Analysis				Relative
Factors	Criteria	Level 2 Data	Result Summary Score		Importance	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)		
			<input type="radio"/>	1 X 1 =	1

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4 X 3.1 =	12
	Displaces other developed uses		<input checked="" type="radio"/>	4 X 2.7 =	11
	Displaces irrigated agriculture		<input type="radio"/>	1 X 3.1 =	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	2 X 2.1 =	4
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 1.9 =	8

Socioeconomic Factors Score: 23 51

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/>	1 X 3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1 X 3.0 =	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/>	4 X 3.0 =	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area				
	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 3.1 =	12

Environmental Factors Score: 18 56

Total Score: 41 107

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - BIRDING ISLAND - 250,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable) <input type="radio"/> 1 X 1 = 1	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 = 12	
	Displaces other developed uses		● 4 X 2.7 = 11	
	Displaces irrigated agriculture		○ 1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	◐ 2 X 2.1 = 4	
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 = 8	

Socioeconomic Factors Score: 23 51

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	○ 1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	○ 1 X 3.0 = 3	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 = 12	
	Located in one of the following:			
	<input type="checkbox"/> Designated Roadless Area		● 4 X 3.0 = 12	
	<input type="checkbox"/> Research Natural Area			
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 = 12	

Environmental Factors Score: 18 56

Total Score: 41 107

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BIRDING ISLAND - 300,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	=	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7	=	11
	Displaces irrigated agriculture		<input type="radio"/>	1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.9	=	8

Socioeconomic Factors Score: 23 **51**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/>	1	X	3.0	=	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area		<input type="radio"/>	2	X	2.1	=	4
	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	=	12

Environmental Factors Score: 18 **56**

Total Score: 41 **107**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BIRDING ISLAND - 400,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 23 **51**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4	X	3.0	=	12
	<input type="checkbox"/> Research Natural Area			4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 19 **59**

Total Score: 42 **110**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BISSEL CREEK - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 2 X 1 = 2	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12
	Displaces other developed uses		4 X 2.7 = 11
	Displaces irrigated agriculture		1 X 3.1 = 3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	4 X 2.1 = 8
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2

Socioeconomic Factors Score: 22 50

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	1 X 3.0 = 3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12

Environmental Factors Score: 21 65

Total Score: 43 114

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BISSEL CREEK - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage		2	X	1	=	2
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		4	X	2.1	=	8
	Displaces transmission line	Miles /10,000 AF		1	X	1.9	=	2

Socioeconomic Factors Score: 22 **50**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area			4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 21 **65**

Total Score: 43 **114**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BISSEL CREEK - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score <i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	2 X 1 = 2	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12
	Displaces other developed uses		4 X 2.7 = 11
	Displaces irrigated agriculture		1 X 3.1 = 3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	4 X 2.1 = 8
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2

Socioeconomic Factors Score: 22 50

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	1 X 3.0 = 3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12

Environmental Factors Score: 21 65

Total Score: 43 114

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BISSEL CREEK - 125,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> </div> <div> 2 X 1 = 2 </div> </div>	

*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>4 X 3.1 = 12</div> </div>
	Displaces other developed uses		<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>4 X 2.7 = 11</div> </div>
	Displaces irrigated agriculture		<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>1 X 3.1 = 3</div> </div>
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>4 X 1.5 = 6</div> </div>
	Eliminates noted fishing reach	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>4 X 1.8 = 7</div> </div>
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>4 X 2.1 = 8</div> </div>
	Displaces transmission line	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>1 X 1.9 = 2</div> </div>

Socioeconomic Factors Score: 22 50

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>4 X 3.3 = 13</div> </div>
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>4 X 3.0 = 12</div> </div>
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>1 X 3.0 = 3</div> </div>
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>4 X 3.0 = 12</div> </div>
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>4 X 3.0 = 12</div> </div>
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>4 X 3.1 = 12</div> </div>

Environmental Factors Score: 21 65

Total Score: 43 114

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BISSEL CREEK - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			<i>Result 1 to 4 (Least to Most Suitable)</i> 2 X 1 = 2	2

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 =	12
	Displaces other developed uses		● 4 X 2.7 =	11
	Displaces irrigated agriculture		○ 1 X 3.1 =	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	● 4 X 2.1 =	8
	Displaces transmission line	Miles /10,000 AF	○ 1 X 1.9 =	2

Socioeconomic Factors Score: 22 **50**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	● 4 X 3.0 =	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◐ 2 X 3.0 =	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		● 4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 =	12

Environmental Factors Score: 22 **68**

Total Score: 44 **117**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BISSEL CREEK - 200,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 2 X 1 = 2	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	4 X 2.1 = 8	
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	

Socioeconomic Factors Score: 22 50

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 22 68

Total Score: 44 117

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BISSEL CREEK - 250,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 2 X 1 = 2	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	4 X 2.1 = 8	
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	

Socioeconomic Factors Score: 22 50

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following:			
	<input type="checkbox"/> Designated Roadless Area		4 X 3.0 = 12	
	<input type="checkbox"/> Research Natural Area			
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 22 68

Total Score: 44 117

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BISSEL CREEK - 300,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition			<i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	2 X 1 = 2	

Socioeconomic Factors				
Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	4 X 2.1 = 8	
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	
Socioeconomic Factors Score:			22	50

Environmental Factors				
Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	
Environmental Factors Score:			22	68

Total Score:			44	117
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Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BISSEL CREEK - 400,000 AF**



Level 2 Analysis				
Factors	Criteria	Level 2 Data	Result Summary Score	Relative Importance

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 2 X 1 = 2
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12
	Displaces other developed uses		4 X 2.7 = 11
	Displaces irrigated agriculture		1 X 3.1 = 3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	3 X 2.1 = 6
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2

Socioeconomic Factors Score: 21 48

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12

Environmental Factors Score: 22 68

Total Score: 43 115

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BLACK CANYON - 30,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/> 1 X 1 = 1	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/> 4 X 3.1 = 12
	Displaces other developed uses		<input checked="" type="radio"/> 4 X 2.7 = 11
	Displaces irrigated agriculture		<input type="radio"/> 1 X 3.1 = 3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 X 1.5 = 2
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 = 2
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/> 1 X 1.9 = 2

Socioeconomic Factors Score: 16 39

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/> 3 X 3.0 = 9
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 X 3.0 = 12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.1 = 12

Environmental Factors Score: 23 71

Total Score: 39 110

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BOILING SPRINGS - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input checked="" type="radio"/> 4 X 1 = 4	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/> 4 X 3.1 = 12	
	Displaces other developed uses		<input checked="" type="radio"/> 4 X 2.7 = 11	
	Displaces irrigated agriculture		<input checked="" type="radio"/> 4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 2.1 = 8	
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.9 = 8	

Socioeconomic Factors Score: 25 **60**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input type="radio"/> 1 X 3.3 = 3	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input type="radio"/> 1 X 3.0 = 3	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.1 = 12	

Environmental Factors Score: 9 **28**

Total Score: 34 **88**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **BOILING SPRINGS - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition			<i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	● 4 X 1 =	4

Socioeconomic Factors				
Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 =	12
	Displaces other developed uses		● 4 X 2.7 =	11
	Displaces irrigated agriculture		● 4 X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	○ 1 X 1.5 =	2
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	● 4 X 2.1 =	8
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 =	8
<u>Socioeconomic Factors Score:</u>			25	60

Environmental Factors				
Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	○ 1 X 3.3 =	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	○ 1 X 3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	○ 1 X 3.0 =	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	○ 1 X 3.0 =	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		○ 1 X 3.0 =	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 =	12
<u>Environmental Factors Score:</u>			9	28

<u>Total Score:</u>			34	88
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Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **CABARTON - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/> 1 X 1 = 1	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 X 3.1 = 3	
	Displaces other developed uses		<input checked="" type="radio"/> 4 X 2.7 = 11	
	Displaces irrigated agriculture		<input type="radio"/> 1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/> 4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.9 = 8	

Socioeconomic Factors Score: 19 40

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 X 3.1 = 3	

Environmental Factors Score: 15 46

Total Score: 34 86

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **CABARTON - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/> 1 <input checked="" type="radio"/> X 1 = 1			
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.1 = 3			
	Displaces other developed uses		<input type="radio"/> 1 <input checked="" type="radio"/> X 2.7 = 3			
	Displaces irrigated agriculture		<input type="radio"/> 1 <input checked="" type="radio"/> X 3.1 = 3			
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 1.5 = 2			
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 1.8 = 7			
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 2.1 = 2			
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 1.9 = 8			

Socioeconomic Factors Score: 13 27

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.3 = 13			
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.0 = 3			
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.0 = 3			
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.0 = 12			
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.0 = 12			
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.1 = 3			

Environmental Factors Score: 15 46

Total Score: 28 74

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - CABARTON - 100,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable) <input type="radio"/> 1 X 1 = 1	1

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 X 3.1 = 3	3
	Displaces other developed uses		<input type="radio"/> 1 X 2.7 = 3	3
	Displaces irrigated agriculture		<input type="radio"/> 1 X 3.1 = 3	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 X 1.5 = 2	2
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 = 2	2
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/> 1 X 1.9 = 2	2

Socioeconomic Factors Score: 10 22

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 X 3.0 = 12	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 X 3.1 = 3	3

Environmental Factors Score: 15 46

Total Score: 25 68

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - CABARTON - 125,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score	Relative Importance
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/> 1 X 1 = 1	1

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 X 3.1 = 3	3
	Displaces other developed uses		<input type="radio"/> 1 X 2.7 = 3	3
	Displaces irrigated agriculture		<input type="radio"/> 1 X 3.1 = 3	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 X 1.5 = 2	2
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 = 2	2
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/> 1 X 1.9 = 2	2

Socioeconomic Factors Score: 10 22

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 X 3.0 = 12	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 X 3.1 = 3	3

Environmental Factors Score: 15 46

Total Score: 25 68

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **CABARTON - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/> 1 X 1 = 1	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 X 3.1 = 3	
	Displaces other developed uses		<input type="radio"/> 1 X 2.7 = 3	
	Displaces irrigated agriculture		<input type="radio"/> 1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/> 1 X 1.9 = 2	

Socioeconomic Factors Score: 10 22

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 X 3.1 = 3	

Environmental Factors Score: 15 46

Total Score: 25 68

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - CABARTON - 200,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable) <input type="radio"/> 1 X 1 = 1	1

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 X 3.1 = 3	3
	Displaces other developed uses		<input type="radio"/> 1 X 2.7 = 3	3
	Displaces irrigated agriculture		<input type="radio"/> 1 X 3.1 = 3	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 X 1.5 = 2	2
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 = 2	2
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/> 1 X 1.9 = 2	2

Socioeconomic Factors Score: 10 22

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 X 3.0 = 12	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 X 3.1 = 3	3

Environmental Factors Score: 15 46

Total Score: 25 68

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **CABARTON - 250,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/> 1 X 1 = 1	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 X 3.1 = 3	
	Displaces other developed uses		<input type="radio"/> 1 X 2.7 = 3	
	Displaces irrigated agriculture		<input type="radio"/> 1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/> 1 X 1.9 = 2	

Socioeconomic Factors Score: 10 22

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 X 3.1 = 3	

Environmental Factors Score: 15 46

Total Score: 25 68

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **CABARTON - 300,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/> 1 X 1 = 1	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 X 3.1 = 3	
	Displaces other developed uses		<input type="radio"/> 1 X 2.7 = 3	
	Displaces irrigated agriculture		<input type="radio"/> 1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/> 1 X 1.9 = 2	

Socioeconomic Factors Score: 10 22

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/> 2 X 3.0 = 6	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 X 3.1 = 3	

Environmental Factors Score: 16 49

Total Score: 26 71

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - DEADWOOD - 25,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	●	4	X	1	=	4
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●	4	X	3.1	=	12
	Displaces other developed uses		●	4	X	2.7	=	11
	Displaces irrigated agriculture		●	4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	●	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	●	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	◐	2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF	●	4	X	1.9	=	8

Socioeconomic Factors Score: 26 **61**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	●	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐	2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	○	1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	○	1	X	3.0	=	3
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		●	4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	●	4	X	3.1	=	12

Environmental Factors Score: 16 **50**

Total Score: 42 **110**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DEADWOOD CANYON - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input checked="" type="radio"/> 4 X 1 = 4	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/> 4 X 3.1 = 12	
	Displaces other developed uses		<input checked="" type="radio"/> 4 X 2.7 = 11	
	Displaces irrigated agriculture		<input checked="" type="radio"/> 4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/> 4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 2.1 = 8	
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.9 = 8	

Socioeconomic Factors Score: 28 **65**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input type="radio"/> 1 X 3.3 = 3	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/> 2 X 3.0 = 6	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input type="radio"/> 1 X 3.0 = 3	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.1 = 12	

Environmental Factors Score: 10 **31**

Total Score: 38 **96**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DEADWOOD CANYON - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input checked="" type="radio"/> 4 X 1 = 4	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/> 4 X 3.1 = 12	
	Displaces other developed uses		<input checked="" type="radio"/> 4 X 2.7 = 11	
	Displaces irrigated agriculture		<input checked="" type="radio"/> 4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/> 4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 2.1 = 8	
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.9 = 8	

Socioeconomic Factors Score: 28 **65**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input type="radio"/> 1 X 3.3 = 3	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/> 2 X 3.0 = 6	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input type="radio"/> 1 X 3.0 = 3	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.1 = 12	

Environmental Factors Score: 10 **31**

Total Score: 38 **96**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DEADWOOD CANYON - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			<i>Result 1 to 4 (Least to Most Suitable)</i> 	4

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 =	12
	Displaces other developed uses		● 4 X 2.7 =	11
	Displaces irrigated agriculture		● 4 X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	● 4 X 2.1 =	8
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 =	8

Socioeconomic Factors Score: 28 **65**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	○ 1 X 3.3 =	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	○ 1 X 3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◐ 2 X 3.0 =	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	○ 1 X 3.0 =	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		○ 1 X 3.0 =	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 =	12

Environmental Factors Score: 10 **31**

Total Score: 38 **96**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DRY BUCK CREEK - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	=	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7	=	11
	Displaces irrigated agriculture		<input checked="" type="radio"/>	4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	1	X	2.1	=	2
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.9	=	8

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	=	12

Environmental Factors Score: 24 **74**

Total Score: 49 **132**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DRY BUCK CREEK - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 2 X 1 = 2	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 = 12	
	Displaces other developed uses		● 4 X 2.7 = 11	
	Displaces irrigated agriculture		● 4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	○ 1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 = 8	

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	● 4 X 3.0 = 12	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	● 4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 = 12	
	Located in one of the following:			
	<input type="checkbox"/> Designated Roadless Area		● 4 X 3.0 = 12	
	<input type="checkbox"/> Research Natural Area			
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 = 12	

Environmental Factors Score: 24 **74**

Total Score: 49 **132**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DRY BUCK CREEK - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 2 X 1 = 2	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	

Socioeconomic Factors Score: 25 59

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 24 74

Total Score: 49 132

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - DRY BUCK CREEK - 125,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)	
			2 X 1 = 2	2

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	12
	Displaces other developed uses		4 X 2.7 = 11	11
	Displaces irrigated agriculture		4 X 3.1 = 12	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	2
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	8

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	12
	Located in one of the following:			
	<input type="checkbox"/> Designated Roadless Area		4 X 3.0 = 12	12
	<input type="checkbox"/> Research Natural Area			
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	12

Environmental Factors Score: 24 **74**

Total Score: 49 **132**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DRY BUCK CREEK - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 2 X 1 = 2	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12
	Displaces other developed uses		4 X 2.7 = 11
	Displaces irrigated agriculture		4 X 3.1 = 12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8

Socioeconomic Factors Score: 26 **61**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		4 X 3.0 = 12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area		
	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12

Environmental Factors Score: 24 **74**

Total Score: 50 **134**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - DRY BUCK CREEK - 200,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)	
			2 X 1 = 2	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	

Socioeconomic Factors Score: 26 61

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following:			
	<input type="checkbox"/> Designated Roadless Area		4 X 3.0 = 12	
	<input type="checkbox"/> Research Natural Area			
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 24 74

Total Score: 50 134

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DRY CREEK - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 2 X 1 = 2	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	4 X 2.1 = 8	
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	

Socioeconomic Factors Score: 25 59

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		4 X 3.0 = 12	
	<input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 24 74

Total Score: 49 133

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DRY CREEK - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 	2	X	1	=	2
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		4	X	2.1	=	8
	Displaces transmission line	Miles /10,000 AF		1	X	1.9	=	2

Socioeconomic Factors Score: 25 59

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		4	X	3.0	=	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area			4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 24 74

Total Score: 49 133

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DRY CREEK - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score <i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	2 X 1 = 2	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12
	Displaces other developed uses		4 X 2.7 = 11
	Displaces irrigated agriculture		4 X 3.1 = 12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	4 X 2.1 = 8
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12

Environmental Factors Score: 24 **74**

Total Score: 49 **133**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DRY CREEK - 125,000 AF**



		Level 2 Analysis				Relative Importance
Factors	Criteria	Level 2 Data	Result Summary Score			

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 2 X 1 = 2		
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		4	X	2.1	=	8
	Displaces transmission line	Miles /10,000 AF		1	X	1.9	=	2

Socioeconomic Factors Score: 25 59

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		4	X	3.0	=	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 24 74

Total Score: 49 133

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DRY CREEK - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 2 X 1 = 2	2
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	12
	Displaces other developed uses		4 X 2.7 = 11	11
	Displaces irrigated agriculture		4 X 3.1 = 12	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	4 X 2.1 = 8	8
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	2

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		4 X 3.0 = 12	12
	<input type="checkbox"/> Research Natural Area			
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	12

Environmental Factors Score: 24 **74**

Total Score: 49 **133**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - DUNNIGAN CREEK - 50,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 2 X 1 = 2	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	

Socioeconomic Factors Score: 25 59

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	1 X 3.0 = 3	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following:			
	<input type="checkbox"/> Designated Roadless Area		4 X 3.0 = 12	
	<input type="checkbox"/> Research Natural Area			
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 18 56

Total Score: 43 114

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DUNNIGAN CREEK - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 	2	X	1	=	2
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		1	X	2.1	=	2
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		1	X	3.0	=	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 18 **56**

Total Score: 43 **114**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DUNNIGAN CREEK - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 	2	X	1 =	2
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1 =	12
	Displaces other developed uses			4	X	2.7 =	11
	Displaces irrigated agriculture			4	X	3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		1	X	2.1 =	2
	Displaces transmission line	Miles /10,000 AF		4	X	1.9 =	8

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		1	X	3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2	X	3.0 =	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			4	X	3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4	X	3.1 =	12

Environmental Factors Score: 19 **59**

Total Score: 44 **117**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DUNNIGAN CREEK - 125,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score <i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	2 X 1 = 2	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12
	Displaces other developed uses		4 X 2.7 = 11
	Displaces irrigated agriculture		4 X 3.1 = 12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 = 3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12

Environmental Factors Score: 19 **59**

Total Score: 44 **117**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DUNNIGAN CREEK - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 2 X 1 = 2	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12
	Displaces other developed uses		4 X 2.7 = 11
	Displaces irrigated agriculture		4 X 3.1 = 12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 = 3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12

Environmental Factors Score: 19 **59**

Total Score: 44 **117**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DUNNIGAN CREEK - 200,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score <i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	2 X 1 = 2	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 19 **59**

Total Score: 44 **117**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DUNNIGAN CREEK - 250,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			<i>Result 1 to 4 (Least to Most Suitable)</i> 2 X 1 = 2	2

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	12
	Displaces other developed uses		4 X 2.7 = 11	11
	Displaces irrigated agriculture		4 X 3.1 = 12	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	2
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	8

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 = 3	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	12

Environmental Factors Score: 19 **59**

Total Score: 44 **117**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **DUNNIGAN CREEK - 300,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition			<i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	2 X 1 =	2

Socioeconomic Factors				
Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 =	12
	Displaces other developed uses		4 X 2.7 =	11
	Displaces irrigated agriculture		4 X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 =	2
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 =	8
<u>Socioeconomic Factors Score:</u>			25	59

Environmental Factors				
Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 =	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 =	12
<u>Environmental Factors Score:</u>			19	59

<u>Total Score:</u>			44	117
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Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - FIREBIRD - 50,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	=	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7	=	11
	Displaces irrigated agriculture		<input type="radio"/>	1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	1	X	2.1	=	2
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.9	=	8

Socioeconomic Factors Score: 22 **49**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	=	12

Environmental Factors Score: 24 **74**

Total Score: 46 **123**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - FIREBIRD - 75,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable) <input type="radio"/> 1 X 1 = 1	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 = 12	
	Displaces other developed uses		● 4 X 2.7 = 11	
	Displaces irrigated agriculture		○ 1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	○ 1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 = 8	

Socioeconomic Factors Score: 22 49

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	● 4 X 3.0 = 12	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	● 4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		● 4 X 3.0 = 12	
	<input type="checkbox"/> Research Natural Area			
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 = 12	

Environmental Factors Score: 24 74

Total Score: 46 123

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - FIREBIRD - 100,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="display: flex; justify-content: space-around;"> Result 1 to 4 (Least to Most Suitable) </div>	○	1	X	1 =	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		●	4	X	3.1 =	12
	Displaces other developed uses			●	4	X	2.7 =	11
	Displaces irrigated agriculture			○	1	X	3.1 =	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		●	4	X	1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF		●	4	X	1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		◐	2	X	2.1 =	4
	Displaces transmission line	Miles /10,000 AF		●	4	X	1.9 =	8

Socioeconomic Factors Score: 23 51

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		●	4	X	3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		●	4	X	3.0 =	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		●	4	X	3.0 =	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		●	4	X	3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			●	4	X	3.0 =	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF		●	4	X	3.1 =	12

Environmental Factors Score: 24 74

Total Score: 47 125

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - FIREBIRD - 125,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> <input type="radio"/> 1 X 1 = 1	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/> 4 X 3.1 = 12
	Displaces other developed uses		<input checked="" type="radio"/> 4 X 2.7 = 11
	Displaces irrigated agriculture		<input type="radio"/> 1 X 3.1 = 3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/> 4 X 1.5 = 6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 2 X 2.1 = 4
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.9 = 8

Socioeconomic Factors Score: 23 51

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/> 4 X 3.0 = 12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area		
	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.1 = 12

Environmental Factors Score: 24 74

Total Score: 47 125

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - FIREBIRD - 150,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	=	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7	=	11
	Displaces irrigated agriculture		<input type="radio"/>	1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.9	=	8

Socioeconomic Factors Score: 23 **51**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	=	12

Environmental Factors Score: 24 **74**

Total Score: 47 **125**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - FIREBIRD - 200,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	=	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7	=	11
	Displaces irrigated agriculture		<input type="radio"/>	1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.9	=	8

Socioeconomic Factors Score: 23 **51**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	=	12

Environmental Factors Score: 24 **74**

Total Score: 47 **125**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - FIREBIRD - 250,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	=	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7	=	11
	Displaces irrigated agriculture		<input type="radio"/>	1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.9	=	8

Socioeconomic Factors Score: 23 **51**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area		<input type="radio"/>					
	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	=	12

Environmental Factors Score: 24 **74**

Total Score: 47 **125**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - FIREBIRD - 300,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	=	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7	=	11
	Displaces irrigated agriculture		<input type="radio"/>	1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.9	=	8

Socioeconomic Factors Score: 23 **51**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	=	12

Environmental Factors Score: 24 **74**

Total Score: 47 **125**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **GRIMES CREEK - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	=	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7	=	11
	Displaces irrigated agriculture		<input checked="" type="radio"/>	4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	1	X	2.1	=	2
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.9	=	8

Socioeconomic Factors Score: 25 **59**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/>	1	X	3.0	=	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	=	12

Environmental Factors Score: 18 **56**

Total Score: 43 **114**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **GRIMES CREEK - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	=	12
	Displaces other developed uses		<input type="radio"/>	1	X	2.7	=	3
	Displaces irrigated agriculture		<input checked="" type="radio"/>	4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	1	X	2.1	=	2
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.9	=	8

Socioeconomic Factors Score: 22 **50**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/>	1	X	3.0	=	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	=	12

Environmental Factors Score: 18 **56**

Total Score: 40 **106**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **GRIMES CREEK - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/> 1 X 1 = 1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/> 4 X 3.1 = 12
	Displaces other developed uses		<input type="radio"/> 1 X 2.7 = 3
	Displaces irrigated agriculture		<input checked="" type="radio"/> 4 X 3.1 = 12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/> 4 X 1.5 = 6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 = 2
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.9 = 8

Socioeconomic Factors Score: 22 50

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 X 3.0 = 3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 X 3.0 = 12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.1 = 12

Environmental Factors Score: 18 56

Total Score: 40 106

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **GRIMES CREEK - 125,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score <i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	○ 1 X 1 =	1

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 =	12
	Displaces other developed uses		○ 1 X 2.7 =	3
	Displaces irrigated agriculture		● 4 X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	○ 1 X 2.1 =	2
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 =	8

Socioeconomic Factors Score: 22 **50**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	○ 1 X 3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	○ 1 X 3.0 =	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		● 4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 =	12

Environmental Factors Score: 18 **56**

Total Score: 40 **106**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **GRIMES CREEK - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/> 1 X 1 =				1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 =				12
	Displaces other developed uses		○ 1 X 2.7 =				3
	Displaces irrigated agriculture		● 4 X 3.1 =				12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 =				6
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 =				7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	○ 1 X 2.1 =				2
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 =				8

Socioeconomic Factors Score: 22 **50**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 =				13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	○ 1 X 3.0 =				3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	○ 1 X 3.0 =				3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 =				12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		● 4 X 3.0 =				12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 =				12

Environmental Factors Score: 18 **56**

Total Score: 40 **106**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **GRIMES CREEK - 200,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	=	12
	Displaces other developed uses		<input type="radio"/>	1	X	2.7	=	3
	Displaces irrigated agriculture		<input checked="" type="radio"/>	4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	1	X	2.1	=	2
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.9	=	8

Socioeconomic Factors Score: 22 **50**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/>	1	X	3.0	=	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area		<input type="radio"/>	1	X	2.1	=	2
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	=	12

Environmental Factors Score: 18 **56**

Total Score: 40 **106**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **GRIMES CREEK - 250,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score <i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	2 X 1 = 2	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		1 X 2.7 = 3	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	

Socioeconomic Factors Score: 22 **50**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	1 X 3.0 = 3	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 18 **56**

Total Score: 40 **106**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **GRIMES CREEK - 300,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 2 X 1 = 2	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	1 X 3.1 = 3	
	Displaces other developed uses		1 X 2.7 = 3	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	

Socioeconomic Factors Score: 19 **41**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	1 X 3.0 = 3	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 18 **56**

Total Score: 37 **97**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - HORSESHOE BEND - 50 .000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> <input type="radio"/> 1 X 1 = 1	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 X 3.1 = 3	
	Displaces other developed uses		<input checked="" type="radio"/> 4 X 2.7 = 11	
	Displaces irrigated agriculture		<input type="radio"/> 1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.9 = 8	

Socioeconomic Factors Score: 16 35

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/> 3 X 3.0 = 9	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.1 = 12	

Environmental Factors Score: 23 71

Total Score: 39 106

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - HORSESHOE BEND - 75 .000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			Result 1 to 4 (Least to Most Suitable) <input type="radio"/> 1 X 1 = 1	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 X 3.1 = 3	
	Displaces other developed uses		<input checked="" type="radio"/> 4 X 2.7 = 11	
	Displaces irrigated agriculture		<input type="radio"/> 1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.9 = 8	

Socioeconomic Factors Score: 16 35

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/> 3 X 3.0 = 9	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/> 4 X 3.0 = 12	
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area		<input type="checkbox"/> 4 X 3.0 = 12	
	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.1 = 12	

Environmental Factors Score: 23 71

Total Score: 39 106

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **HORSESHOE BEND - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score <i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<input type="radio"/> 1 <input checked="" type="radio"/> X 1 = 1	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.1 = 3	
	Displaces other developed uses		<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 2.7 = 11	
	Displaces irrigated agriculture		<input type="radio"/> 1 <input checked="" type="radio"/> X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 1.9 = 8	

Socioeconomic Factors Score: 16 35

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/> 3 <input checked="" type="radio"/> X 3.0 = 9	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.1 = 3	

Environmental Factors Score: 20 61

Total Score: 36 97

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - HORSESHOE BEND - 125,000 AF

High 1/3
 Mid 1/3
 Low 1/3
 None

Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable) <input type="radio"/> 1 X 1 = 1	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 X 3.1 = 3	
	Displaces other developed uses		<input checked="" type="radio"/> 4 X 2.7 = 11	
	Displaces irrigated agriculture		<input type="radio"/> 1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.9 = 8	

Socioeconomic Factors Score: 16 35

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/> 3 X 3.0 = 9	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 X 3.1 = 3	

Environmental Factors Score: 20 61

Total Score: 36 97

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - HORSESHOE BEND - 150,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			Result 1 to 4 (Least to Most Suitable) <input type="radio"/> 1 X 1 = 1	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 X 3.1 = 3	
	Displaces other developed uses		<input checked="" type="radio"/> 4 X 2.7 = 11	
	Displaces irrigated agriculture		<input type="radio"/> 1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.9 = 8	

Socioeconomic Factors Score: 16 35

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/> 3 X 3.0 = 9	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/> 4 X 3.0 = 12	
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area		<input type="radio"/> 1 X 3.1 = 3	
	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 X 3.1 = 3	

Environmental Factors Score: 20 61

Total Score: 36 97

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **HORSESHOE BEND - 200,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable) <input type="radio"/> 1 X 1 =	1

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 X 3.1 =	3
	Displaces other developed uses		<input checked="" type="radio"/> 4 X 2.7 =	11
	Displaces irrigated agriculture		<input type="radio"/> 1 X 3.1 =	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 X 1.5 =	2
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 =	2
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.9 =	8

Socioeconomic Factors Score: 16 35

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/> 3 X 3.0 =	9
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/> 3 X 3.0 =	9
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 X 3.1 =	3

Environmental Factors Score: 19 58

Total Score: 35 94

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - HORSESHOE BEND - 250 .000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)	
			2 X 1 = 2	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	1 X 3.1 = 3	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	

Socioeconomic Factors Score: 16 **35**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	3 X 3.0 = 9	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	3 X 3.0 = 9	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	1 X 3.1 = 3	

Environmental Factors Score: 19 **58**

Total Score: 35 **94**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - HORSESHOE BEND - 300,000 AF



		Level 2 Analysis			Relative Importance
Factors	Criteria	Level 2 Data	Result Summary Score		

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)		
				2 X 1 =	2

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		1 X 3.1 =	3
	Displaces other developed uses			4 X 2.7 =	11
	Displaces irrigated agriculture			1 X 3.1 =	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		1 X 1.5 =	2
	Eliminates noted fishing reach	Miles /10,000 AF		4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		1 X 2.1 =	2
	Displaces transmission line	Miles /10,000 AF		4 X 1.9 =	8

Socioeconomic Factors Score: 16 35

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		3 X 3.0 =	9
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2 X 3.0 =	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		1 X 3.1 =	3

Environmental Factors Score: 18 55

Total Score: 34 91

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - HORSESHOE BEND - 400,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)	
			2 X 1 = 2	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	1 X 3.1 = 3	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	

Socioeconomic Factors Score: 16 **35**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	3 X 3.0 = 9	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	3 X 3.0 = 9	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	1 X 3.1 = 3	

Environmental Factors Score: 19 **58**

Total Score: 35 **94**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - INDIAN CREEK-MAYFIELD - 100,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 2 X 1 = 2	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		2 X 3.1 = 6	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	4 X 2.1 = 8	
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	

Socioeconomic Factors Score: 23 **53**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 24 **74**

Total Score: 47 **127**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **KRALL MOUNTAIN - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 3 X 1 = 3	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	

Socioeconomic Factors Score: 23 **56**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	2 X 3.0 = 6	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following:			
	<input type="checkbox"/> Designated Roadless Area		1 X 3.0 = 3	
	<input checked="" type="checkbox"/> Research Natural Area			
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 19 **59**

Total Score: 42 **115**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - LITTLE PAYETTE LAKE - 16,500 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 2 X 1 = 2	2
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	12
	Displaces other developed uses		4 X 2.7 = 11	11
	Displaces irrigated agriculture		4 X 3.1 = 12	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	1 X 1.5 = 2	2
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	2
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	8

Socioeconomic Factors Score: 22 54

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	1 X 3.0 = 3	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	12

Environmental Factors Score: 21 65

Total Score: 43 119

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - LITTLE WILLOW CREEK - 50,000 AF



Level 2 Analysis					Relative Importance
Factors	Criteria	Level 2 Data	Result	Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)		
				2 X 1 =	2

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4 X 3.1 =	12	
	Displaces other developed uses			4 X 2.7 =	11	
	Displaces irrigated agriculture			2 X 3.1 =	6	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4 X 1.5 =	6	
	Eliminates noted fishing reach	Miles /10,000 AF		4 X 1.8 =	7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		4 X 2.1 =	8	
	Displaces transmission line	Miles /10,000 AF		1 X 1.9 =	2	
Socioeconomic Factors Score:					23	53

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4 X 3.3 =	13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		1 X 3.0 =	3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		1 X 3.0 =	3	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4 X 3.0 =	12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4 X 3.0 =	12	
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area					
	Designated Recreation River	Miles /10,000 AF		4 X 3.1 =	12	
Environmental Factors Score:					18	56

Total Score: **41** **109**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **LITTLE WILLOW CREEK - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 2 X 1 = 2	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		2 X 3.1 = 6	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	4 X 2.1 = 8	
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	

Socioeconomic Factors Score: 23 53

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	2 X 3.0 = 6	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following:			
	<input type="checkbox"/> Designated Roadless Area		4 X 3.0 = 12	
	<input type="checkbox"/> Research Natural Area			
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 20 62

Total Score: 43 115

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - LITTLE WILLOW CREEK - 100,000 AF



		Level 2 Analysis				Relative Importance
Factors	Criteria	Level 2 Data	Result Summary Score			

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)		
				2 X 1 =	2

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4 X 3.1 =	12	
	Displaces other developed uses			4 X 2.7 =	11	
	Displaces irrigated agriculture			2 X 3.1 =	6	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4 X 1.5 =	6	
	Eliminates noted fishing reach	Miles /10,000 AF		4 X 1.8 =	7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		4 X 2.1 =	8	
	Displaces transmission line	Miles /10,000 AF		1 X 1.9 =	2	
Socioeconomic Factors Score:					23	53

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4 X 3.3 =	13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2 X 3.0 =	6	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2 X 3.0 =	6	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4 X 3.0 =	12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			4 X 3.0 =	12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4 X 3.1 =	12	
Environmental Factors Score:					20	62

Total Score: **43** **115**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - LITTLE WILLOW CREEK - 125,000 AF



Level 2 Analysis					Relative Importance
Factors	Criteria	Level 2 Data	Result Summary Score		

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)		
				2 X 1 =	2

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4 X 3.1 =	12	
	Displaces other developed uses			4 X 2.7 =	11	
	Displaces irrigated agriculture			2 X 3.1 =	6	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4 X 1.5 =	6	
	Eliminates noted fishing reach	Miles /10,000 AF		4 X 1.8 =	7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		4 X 2.1 =	8	
	Displaces transmission line	Miles /10,000 AF		1 X 1.9 =	2	
Socioeconomic Factors Score:					23	53

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4 X 3.3 =	13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2 X 3.0 =	6	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2 X 3.0 =	6	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4 X 3.0 =	12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4 X 3.0 =	12	
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area			4 X 3.0 =	12	
	Designated Recreation River	Miles /10,000 AF		4 X 3.1 =	12	
Environmental Factors Score:					20	62

Total Score: 43 115

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - LITTLE WILLOW CREEK - 150,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)		2	X	1	=	2
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage			4	X	3.1	=	12
	Displaces other developed uses				4	X	2.7	=	11
	Displaces irrigated agriculture				2	X	3.1	=	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF			4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF			4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF			4	X	2.1	=	8
	Displaces transmission line	Miles /10,000 AF			1	X	1.9	=	2

Socioeconomic Factors Score: 23 **53**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF			4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF			2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF			2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF			4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area				4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF			4	X	3.1	=	12

Environmental Factors Score: 20 **62**

Total Score: 43 **115**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - LITTLE WILLOW CREEK - 200,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage		2	X	1	=	2
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			2	X	3.1	=	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		4	X	2.1	=	8
	Displaces transmission line	Miles /10,000 AF		1	X	1.9	=	2

Socioeconomic Factors Score: 23 53

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 20 62

Total Score: 43 115

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - LOWER SQUAW CREEK - 50,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable) 2 X 1 = 2	2
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	12
	Displaces other developed uses		4 X 2.7 = 11	11
	Displaces irrigated agriculture		4 X 3.1 = 12	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	4
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	2

Socioeconomic Factors Score: 23 **55**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	12

Environmental Factors Score: 22 **68**

Total Score: 45 **123**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - LOWER SQUAW CREEK - 75,000 AF



		Level 2 Analysis				Relative
Factors	Criteria	Level 2 Data	Result Summary Score		Importance	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)		
				2 X 1 =	2

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4 X 3.1 =	12	
	Displaces other developed uses			4 X 2.7 =	11	
	Displaces irrigated agriculture			4 X 3.1 =	12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4 X 1.5 =	6	
	Eliminates noted fishing reach	Miles /10,000 AF		4 X 1.8 =	7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2 X 2.1 =	4	
	Displaces transmission line	Miles /10,000 AF		1 X 1.9 =	2	
Socioeconomic Factors Score:					23	55

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4 X 3.3 =	13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2 X 3.0 =	6	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2 X 3.0 =	6	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4 X 3.0 =	12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			4 X 3.0 =	12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4 X 3.1 =	12	
Environmental Factors Score:					20	62

Total Score: 43 117

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - LOWER SQUAW CREEK - 100,000 AF



Level 2 Analysis				
Factors	Criteria	Level 2 Data	Result Summary Score	Relative Importance

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">2</div> <div style="margin-right: 5px;">X</div> <div style="margin-right: 5px;">1</div> <div style="margin-right: 5px;">=</div> <div>2</div> </div>	<i>Result 1 to 4 (Least to Most Suitable)</i>
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">4</div> <div style="margin-right: 5px;">X</div> <div style="margin-right: 5px;">3.1</div> <div style="margin-right: 5px;">=</div> <div>12</div> </div>	
	Displaces other developed uses		<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">4</div> <div style="margin-right: 5px;">X</div> <div style="margin-right: 5px;">2.7</div> <div style="margin-right: 5px;">=</div> <div>11</div> </div>	
	Displaces irrigated agriculture		<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">4</div> <div style="margin-right: 5px;">X</div> <div style="margin-right: 5px;">3.1</div> <div style="margin-right: 5px;">=</div> <div>12</div> </div>	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">4</div> <div style="margin-right: 5px;">X</div> <div style="margin-right: 5px;">1.5</div> <div style="margin-right: 5px;">=</div> <div>6</div> </div>	
	Eliminates noted fishing reach	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">4</div> <div style="margin-right: 5px;">X</div> <div style="margin-right: 5px;">1.8</div> <div style="margin-right: 5px;">=</div> <div>7</div> </div>	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">2</div> <div style="margin-right: 5px;">X</div> <div style="margin-right: 5px;">2.1</div> <div style="margin-right: 5px;">=</div> <div>4</div> </div>	
	Displaces transmission line	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">1</div> <div style="margin-right: 5px;">X</div> <div style="margin-right: 5px;">1.9</div> <div style="margin-right: 5px;">=</div> <div>2</div> </div>	
Socioeconomic Factors Score:			23	55

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">4</div> <div style="margin-right: 5px;">X</div> <div style="margin-right: 5px;">3.3</div> <div style="margin-right: 5px;">=</div> <div>13</div> </div>	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">2</div> <div style="margin-right: 5px;">X</div> <div style="margin-right: 5px;">3.0</div> <div style="margin-right: 5px;">=</div> <div>6</div> </div>	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">2</div> <div style="margin-right: 5px;">X</div> <div style="margin-right: 5px;">3.0</div> <div style="margin-right: 5px;">=</div> <div>6</div> </div>	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">4</div> <div style="margin-right: 5px;">X</div> <div style="margin-right: 5px;">3.0</div> <div style="margin-right: 5px;">=</div> <div>12</div> </div>	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">4</div> <div style="margin-right: 5px;">X</div> <div style="margin-right: 5px;">3.0</div> <div style="margin-right: 5px;">=</div> <div>12</div> </div>	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 5px;">4</div> <div style="margin-right: 5px;">X</div> <div style="margin-right: 5px;">3.1</div> <div style="margin-right: 5px;">=</div> <div>12</div> </div>	
Environmental Factors Score:			20	62

Total Score: 43 117

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - LOWER SQUAW CREEK - 125,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 2 X 1 = 2	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	

Socioeconomic Factors Score: 23 **55**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	2 X 3.0 = 6	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 20 **62**

Total Score: 43 **117**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - LOWER SQUAW CREEK - 150,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 2 X 1 = 2	2
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	12
	Displaces other developed uses		4 X 2.7 = 11	11
	Displaces irrigated agriculture		2 X 3.1 = 6	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	4
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	2

Socioeconomic Factors Score: 21 49

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	2 X 3.0 = 6	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		4 X 3.0 = 12	12
	<input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	12

Environmental Factors Score: 20 62

Total Score: 41 110

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - LOWER SQUAW CREEK - 200,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 2 X 1 = 2	2
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	12
	Displaces other developed uses		4 X 2.7 = 11	11
	Displaces irrigated agriculture		1 X 3.1 = 3	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	4
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	2

Socioeconomic Factors Score: 20 46

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	2 X 3.0 = 6	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	12

Environmental Factors Score: 20 62

Total Score: 40 107

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **LUCKY PEAK - 35,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage		3	X	1	=	3
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			2	X	3.1	=	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		1	X	1.5	=	2
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 21 **50**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			1	X	3.0	=	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 17 **53**

Total Score: 38 **103**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - MIDDLE FORK PAYETTE RIVER - 50,000 AF

High 1/3
 Mid 1/3
 Low 1/3
 None

Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			Result 1 to 4 (Least to Most Suitable) <input type="radio"/> 1 X 1 = 1	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 = 12	
	Displaces other developed uses		● 4 X 2.7 = 11	
	Displaces irrigated agriculture		○ 1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	○ 1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	○ 1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 = 8	

Socioeconomic Factors Score: 19 **45**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	○ 1 X 3.3 = 3	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	○ 1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	● 4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 = 12	
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		○ 1 X 3.0 = 3	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 = 12	

Environmental Factors Score: 15 **46**

Total Score: 34 **90**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - MIDDLE FORK PAYETTE RIVER - 75,000 AF

High 1/3
 Mid 1/3
 Low 1/3
 None

Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			Result 1 to 4 (Least to Most Suitable) <input type="radio"/> 1 X 1 = 1	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 =	12
	Displaces other developed uses		● 4 X 2.7 =	11
	Displaces irrigated agriculture		○ 1 X 3.1 =	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	○ 1 X 1.5 =	2
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	○ 1 X 2.1 =	2
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 =	8

Socioeconomic Factors Score: 19 **45**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	○ 1 X 3.3 =	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	○ 1 X 3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	● 4 X 3.0 =	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 =	12
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		○ 1 X 3.0 =	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 =	12

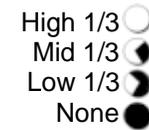
Environmental Factors Score: 15 **46**

Total Score: 34 **90**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - MIDDLE FORK PAYETTE RIVER - 100,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)	<input type="radio"/> 1 X 1 =	1	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●	4	X	3.1	=	12
	Displaces other developed uses		●	4	X	2.7	=	11
	Displaces irrigated agriculture		○	1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	○	1	X	1.5	=	2
	Eliminates noted fishing reach	Miles /10,000 AF	●	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	○	1	X	2.1	=	2
	Displaces transmission line	Miles /10,000 AF	●	4	X	1.9	=	8

Socioeconomic Factors Score: 19 45

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	○	1	X	3.3	=	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	○	1	X	3.0	=	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	●	4	X	3.0	=	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	○	1	X	3.0	=	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		○	1	X	3.0	=	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	●	4	X	3.1	=	12

Environmental Factors Score: 12 37

Total Score: 31 81

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - MIDDLE FORK PAYETTE RIVER - 125,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 2 X 1 = 2	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		2 X 3.1 = 6	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	

Socioeconomic Factors Score: 20 48

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	1 X 3.3 = 3	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	3 X 3.0 = 9	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	1 X 3.0 = 3	
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		1 X 3.0 = 3	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 11 34

Total Score: 31 82

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - MIDDLE FORK PAYETTE RIVER - 150,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage		2	X	1	=	2
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			2	X	3.1	=	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		1	X	1.5	=	2
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		1	X	2.1	=	2
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 20 48

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		1	X	3.3	=	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		1	X	3.0	=	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		3	X	3.0	=	9
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		1	X	3.0	=	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			1	X	3.0	=	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 11 34

Total Score: 31 82

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - MIDDLE FORK PAYETTE RIVER - 200,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

			Result Summary Score	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> </div> <div> 2 X 1 = 2 </div> </div>	

*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>4 X 3.1 = 12</div> </div>
	Displaces other developed uses		<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>4 X 2.7 = 11</div> </div>
	Displaces irrigated agriculture		<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>2 X 3.1 = 6</div> </div>
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>1 X 1.5 = 2</div> </div>
	Eliminates noted fishing reach	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>4 X 1.8 = 7</div> </div>
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>2 X 2.1 = 4</div> </div>
	Displaces transmission line	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>4 X 1.9 = 8</div> </div>

Socioeconomic Factors Score: 21 **50**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>1 X 3.3 = 3</div> </div>
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>2 X 3.0 = 6</div> </div>
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>3 X 3.0 = 9</div> </div>
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>1 X 3.0 = 3</div> </div>
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>1 X 3.0 = 3</div> </div>
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"></div> <div>4 X 3.1 = 12</div> </div>

Environmental Factors Score: 12 **37**

Total Score: 33 **87**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - MIDDLE FORK PAYETTE RIVER - 250,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 2 X 1 = 2	2
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	12
	Displaces other developed uses		4 X 2.7 = 11	11
	Displaces irrigated agriculture		2 X 3.1 = 6	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	1 X 1.5 = 2	2
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	4
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	8

Socioeconomic Factors Score: 21 **50**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	1 X 3.3 = 3	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	2 X 3.0 = 6	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	3 X 3.0 = 9	9
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	1 X 3.0 = 3	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		1 X 3.0 = 3	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	12

Environmental Factors Score: 12 **37**

Total Score: 33 **87**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - MIDDLE FORK PAYETTE RIVER - 300,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 2 X 1 = 2	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		2 X 3.1 = 6	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	

Socioeconomic Factors Score: 21 **50**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	1 X 3.3 = 3	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	2 X 3.0 = 6	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	3 X 3.0 = 9	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	1 X 3.0 = 3	
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		1 X 3.0 = 3	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 12 **37**

Total Score: 33 **87**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **OXBOW BEND - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> <input checked="" type="radio"/> 3 X 1 = 3	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 X 3.1 = 3	
	Displaces other developed uses		<input checked="" type="radio"/> 4 X 2.7 = 11	
	Displaces irrigated agriculture		<input checked="" type="radio"/> 4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.9 = 8	

Socioeconomic Factors Score: 19 45

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input type="radio"/> 1 X 3.3 = 3	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input checked="" type="checkbox"/> Research Natural Area		<input type="radio"/> 1 X 3.0 = 3	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 X 3.1 = 3	

Environmental Factors Score: 6 18

Total Score: 25 63

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **OXBOW BEND - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 	3	X	1	=	3
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		1	X	3.1	=	3
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		1	X	1.5	=	2
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		1	X	2.1	=	2
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 19 **45**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		1	X	3.3	=	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		1	X	3.0	=	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		1	X	3.0	=	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input checked="" type="checkbox"/> Research Natural Area			1	X	3.0	=	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		1	X	3.1	=	3

Environmental Factors Score: 6 **18**

Total Score: 25 **63**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **OXBOW BEND - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input checked="" type="radio"/> 3 X 1 = 3	3
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 X 3.1 = 3	3
	Displaces other developed uses		<input checked="" type="radio"/> 4 X 2.7 = 11	11
	Displaces irrigated agriculture		<input checked="" type="radio"/> 4 X 3.1 = 12	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 X 1.5 = 2	2
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 = 2	2
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.9 = 8	8

Socioeconomic Factors Score: 19 **45**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input type="radio"/> 1 X 3.3 = 3	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input checked="" type="checkbox"/> Research Natural Area		<input type="radio"/> 1 X 3.0 = 3	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 X 3.1 = 3	3

Environmental Factors Score: 6 **18**

Total Score: 25 **63**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **OXBOW BEND - 125,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 3 X 1 = 3	3
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	1 X 3.1 = 3	3
	Displaces other developed uses		4 X 2.7 = 11	11
	Displaces irrigated agriculture		4 X 3.1 = 12	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	1 X 1.5 = 2	2
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	2
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	8

Socioeconomic Factors Score: 19 45

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	1 X 3.3 = 3	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 = 3	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	1 X 3.0 = 3	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input checked="" type="checkbox"/> Research Natural Area		1 X 3.0 = 3	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	1 X 3.1 = 3	3

Environmental Factors Score: 7 21

Total Score: 26 66

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **OXBOW BEND - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 	3	X	1	=	3
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		1	X	3.1	=	3
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		1	X	1.5	=	2
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		1	X	2.1	=	2
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 19 **45**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		1	X	3.3	=	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		1	X	3.0	=	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		1	X	3.0	=	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input checked="" type="checkbox"/> Research Natural Area			1	X	3.0	=	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		1	X	3.1	=	3

Environmental Factors Score: 7 **21**

Total Score: 26 **66**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **OXBOW BEND - 200,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 	3	X	1	=	3
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		1	X	3.1	=	3
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		1	X	1.5	=	2
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		1	X	2.1	=	2
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 19 45

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		1	X	3.3	=	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		1	X	3.0	=	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		1	X	3.0	=	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input checked="" type="checkbox"/> Research Natural Area			1	X	3.0	=	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		1	X	3.1	=	3

Environmental Factors Score: 7 21

Total Score: 26 66

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **OXBOW BEND - 250,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			<i>Result 1 to 4 (Least to Most Suitable)</i> 3 X 1 = 3	3

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	1 X 3.1 = 3	3
	Displaces other developed uses		4 X 2.7 = 11	11
	Displaces irrigated agriculture		4 X 3.1 = 12	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	1 X 1.5 = 2	2
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	2
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	8

Socioeconomic Factors Score: 19 45

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	1 X 3.3 = 3	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	2 X 3.0 = 6	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	1 X 3.0 = 3	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input checked="" type="checkbox"/> Research Natural Area		1 X 3.0 = 3	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	1 X 3.1 = 3	3

Environmental Factors Score: 8 24

Total Score: 27 69

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **OXBOW BEND - 300,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="display: flex; justify-content: space-between;"> Result 1 to 4 (Least to Most Suitable) </div>	3	X	1	=	3
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		1	X	3.1	=	3
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			4	X	3.1	=	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		1	X	1.5	=	2
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		1	X	2.1	=	2
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 19 **45**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		1	X	3.3	=	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		1	X	3.0	=	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input checked="" type="checkbox"/> Research Natural Area			1	X	3.0	=	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		1	X	3.1	=	3

Environmental Factors Score: 8 **24**

Total Score: 27 **69**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - PADDOCK VALLEY - 25,000 AF



		Level 2 Analysis				Relative Importance
Factors	Criteria	Level 2 Data	Result Summary Score			

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)		
				2 X 1 =	2

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4 X 3.1 =	12
	Displaces other developed uses			4 X 2.7 =	11
	Displaces irrigated agriculture			1 X 3.1 =	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF		4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		4 X 2.1 =	8
	Displaces transmission line	Miles /10,000 AF		4 X 1.9 =	8

Socioeconomic Factors Score: 25 56

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		4 X 3.0 =	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		4 X 3.0 =	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4 X 3.1 =	12

Environmental Factors Score: 24 74

Total Score: 49 129

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **PIONEERVILLE - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score <i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	2 X 1 = 2	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	1 X 3.1 = 3	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	

Socioeconomic Factors Score: 19 40

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	1 X 3.0 = 3	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 18 56

Total Score: 37 96

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **PIONEERVILLE - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 	2	X	1	=	2
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		1	X	3.1	=	3
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 20 42

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 19 59

Total Score: 39 101

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **PIONEERVILLE - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 	2	X	1	=	2
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		1	X	3.1	=	3
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 20 42

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 19 59

Total Score: 39 101

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **PIONEERVILLE - 125,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage		3	X	1	=	3
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		1	X	3.1	=	3
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			2	X	3.1	=	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 21 **45**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 19 **59**

Total Score: 40 **104**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **PIONEERVILLE - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage		3	X	1	=	3
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		1	X	3.1	=	3
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			2	X	3.1	=	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 21 **45**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 19 **59**

Total Score: 40 **104**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **PIONEERVILLE - 200,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score <i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	3 X 1 = 3	3

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	1 X 3.1 = 3	3
	Displaces other developed uses		4 X 2.7 = 11	11
	Displaces irrigated agriculture		2 X 3.1 = 6	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	4
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	8

Socioeconomic Factors Score: 21 45

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	2 X 3.0 = 6	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	12

Environmental Factors Score: 20 62

Total Score: 41 107

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **PIONEERVILLE - 250,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage		3	X	1	=	3
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		1	X	3.1	=	3
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			2	X	3.1	=	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 21 **45**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 20 **62**

Total Score: 41 **107**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **PIONEERVILLE - 300,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 	3	X	1	=	3
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		1	X	3.1	=	3
	Displaces other developed uses			1	X	2.7	=	3
	Displaces irrigated agriculture			2	X	3.1	=	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 18 **37**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 20 **62**

Total Score: 38 **99**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **RABBIT CREEK - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	● 4 X 1 = 4	

*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 = 12
	Displaces other developed uses		● 4 X 2.7 = 11
	Displaces irrigated agriculture		● 4 X 3.1 = 12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 = 6
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	◐ 2 X 2.1 = 4
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 = 8

Socioeconomic Factors Score: 26 **61**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	○ 1 X 3.0 = 3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◐ 2 X 3.0 = 6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 = 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		● 4 X 3.0 = 12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area		
	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 = 12

Environmental Factors Score: 19 **59**

Total Score: 45 **119**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ROUND VALLEY - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition			<i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<input type="radio"/> 1 X 1 =	1

Socioeconomic Factors				
Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 =	12
	Displaces other developed uses		● 4 X 2.7 =	11
	Displaces irrigated agriculture		○ 1 X 3.1 =	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	○ 1 X 2.1 =	2
	Displaces transmission line	Miles /10,000 AF	○ 1 X 1.9 =	2
<u>Socioeconomic Factors Score:</u>			19	44

Environmental Factors				
Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	● 4 X 3.0 =	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	○ 1 X 3.0 =	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		● 4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 =	12
<u>Environmental Factors Score:</u>			21	65

<u>Total Score:</u>			40	108
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Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ROUND VALLEY - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="display: flex; justify-content: space-around;"> Result 1 to 4 (Least to Most Suitable) </div>	○	1	X	1 =	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		●	4	X	3.1 =	12
	Displaces other developed uses			●	4	X	2.7 =	11
	Displaces irrigated agriculture			○	1	X	3.1 =	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		●	4	X	1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF		●	4	X	1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		◐	2	X	2.1 =	4
	Displaces transmission line	Miles /10,000 AF		○	1	X	1.9 =	2

Socioeconomic Factors Score: 20 46

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		●	4	X	3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		●	4	X	3.0 =	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		○	1	X	3.0 =	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		●	4	X	3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			●	4	X	3.0 =	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF		●	4	X	3.1 =	12

Environmental Factors Score: 21 65

Total Score: 41 110

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ROUND VALLEY - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	=	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7	=	11
	Displaces irrigated agriculture		<input type="radio"/>	1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/>	1	X	1.9	=	2

Socioeconomic Factors Score: 20 **46**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	=	12

Environmental Factors Score: 21 **65**

Total Score: 41 **110**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ROUND VALLEY - 125,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition			<i>Result 1 to 4 (Least to Most Suitable)</i>				
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	○	1	X	1	= 1

Socioeconomic Factors							
Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●	4	X	3.1	= 12
	Displaces other developed uses		●	4	X	2.7	= 11
	Displaces irrigated agriculture		○	1	X	3.1	= 3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	●	4	X	1.5	= 6
	Eliminates noted fishing reach	Miles /10,000 AF	●	4	X	1.8	= 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	◐	2	X	2.1	= 4
	Displaces transmission line	Miles /10,000 AF	○	1	X	1.9	= 2
<u>Socioeconomic Factors Score:</u>			20				46

Environmental Factors							
Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	●	4	X	3.3	= 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	●	4	X	3.0	= 12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	○	1	X	3.0	= 3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	●	4	X	3.0	= 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		●	4	X	3.0	= 12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF	●	4	X	3.1	= 12
<u>Environmental Factors Score:</u>			21				65

<u>Total Score:</u>	41	110
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Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ROUND VALLEY - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	= 1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	= 12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7	= 11
	Displaces irrigated agriculture		<input type="radio"/>	1	X	3.1	= 3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	= 6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	= 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	2	X	2.1	= 4
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/>	1	X	1.9	= 2

Socioeconomic Factors Score: 20 **46**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	= 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	= 12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1	X	3.0	= 3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	= 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/>	4	X	3.0	= 12
	<input type="checkbox"/> Research Natural Area		<input type="radio"/>	4	X	3.0	= 12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	= 12

Environmental Factors Score: 21 **65**

Total Score: 41 **110**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ROUND VALLEY - 200,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score <i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	○ 1 X 1 =	1

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 =	12
	Displaces other developed uses		● 4 X 2.7 =	11
	Displaces irrigated agriculture		○ 1 X 3.1 =	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	◐ 2 X 2.1 =	4
	Displaces transmission line	Miles /10,000 AF	○ 1 X 1.9 =	2

Socioeconomic Factors Score: 20 **46**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	● 4 X 3.0 =	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	○ 1 X 3.0 =	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		● 4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 =	12

Environmental Factors Score: 21 **65**

Total Score: 41 **110**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ROUND VALLEY - 250,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	=	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7	=	11
	Displaces irrigated agriculture		<input type="radio"/>	1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/>	1	X	1.9	=	2

Socioeconomic Factors Score: 20 **46**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	=	12

Environmental Factors Score: 21 **65**

Total Score: 41 **110**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **ROUND VALLEY - 300,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	=	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7	=	11
	Displaces irrigated agriculture		<input type="radio"/>	1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/>	1	X	1.9	=	2

Socioeconomic Factors Score: 20 **46**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area		<input type="radio"/>	1	X	1.9	=	2
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	=	12

Environmental Factors Score: 21 **65**

Total Score: 41 **110**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SAND HOLLOW - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	=	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7	=	11
	Displaces irrigated agriculture		<input type="radio"/>	1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	2.1	=	8
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/>	1	X	1.9	=	2

Socioeconomic Factors Score: 22 **50**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	=	12

Environmental Factors Score: 21 **65**

Total Score: 43 **114**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SAND HOLLOW - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1	=	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1	=	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7	=	11
	Displaces irrigated agriculture		<input type="radio"/>	1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	2.1	=	8
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/>	1	X	1.9	=	2

Socioeconomic Factors Score: 22 **50**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/>	4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1	=	12

Environmental Factors Score: 21 **65**

Total Score: 43 **114**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SAND HOLLOW - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage		2	X	1	=	2
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		4	X	2.1	=	8
	Displaces transmission line	Miles /10,000 AF		1	X	1.9	=	2

Socioeconomic Factors Score: 22 50

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4	X	3.0	=	12
	<input type="checkbox"/> Research Natural Area			4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 21 65

Total Score: 43 114

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SAND HOLLOW - 125,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage		2	X	1	=	2
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		4	X	2.1	=	8
	Displaces transmission line	Miles /10,000 AF		1	X	1.9	=	2

Socioeconomic Factors Score: 22 **50**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area			4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 21 **65**

Total Score: 43 **114**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SAND HOLLOW - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage		2	X	1	=	2
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			2	X	3.1	=	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		4	X	2.1	=	8
	Displaces transmission line	Miles /10,000 AF		1	X	1.9	=	2

Socioeconomic Factors Score: 23 **53**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area			4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 22 **68**

Total Score: 45 **121**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SAND HOLLOW - 200,000 AF**



Level 2 Analysis				
Factors	Criteria	Level 2 Data	Result Summary Score	Relative Importance

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 2 X 1 = 2
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12
	Displaces other developed uses		4 X 2.7 = 11
	Displaces irrigated agriculture		2 X 3.1 = 6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	4 X 2.1 = 8
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2

Socioeconomic Factors Score: 23 53

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12

Environmental Factors Score: 22 68

Total Score: 45 121

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SAND HOLLOW - 250,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 2 X 1 = 2	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		2 X 3.1 = 6	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	4 X 2.1 = 8	
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	

Socioeconomic Factors Score: 23 53

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 22 68

Total Score: 45 121

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SAND HOLLOW - 300,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage		2	X	1	=	2
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			2	X	3.1	=	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		4	X	2.1	=	8
	Displaces transmission line	Miles /10,000 AF		1	X	1.9	=	2

Socioeconomic Factors Score: 23 **53**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		4	X	3.0	=	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		2	X	3.0	=	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area			4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 22 **68**

Total Score: 45 **121**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SCRIVER CREEK - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i>  4 X 1 = 4	4
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	 4 X 3.1 = 12	12
	Displaces other developed uses		 4 X 2.7 = 11	11
	Displaces irrigated agriculture		 4 X 3.1 = 12	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	 4 X 1.5 = 6	6
	Eliminates noted fishing reach	Miles /10,000 AF	 4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	 4 X 2.1 = 8	8
	Displaces transmission line	Miles /10,000 AF	 4 X 1.9 = 8	8

Socioeconomic Factors Score: 28 **65**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	 4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	 2 X 3.0 = 6	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	 4 X 3.0 = 12	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	 4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		 4 X 3.0 = 12	12
	<input type="checkbox"/> Research Natural Area		 4 X 3.0 = 12	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	 4 X 3.1 = 12	12

Environmental Factors Score: 22 **68**

Total Score: 50 **132**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SCRIVER CREEK - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	● 4 X 1 = 4	

*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 = 12
	Displaces other developed uses		● 4 X 2.7 = 11
	Displaces irrigated agriculture		● 4 X 3.1 = 12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 = 6
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	● 4 X 2.1 = 8
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 = 8

Socioeconomic Factors Score: 28 **65**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐ 2 X 3.0 = 6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◑ 3 X 3.0 = 9
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 = 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		● 4 X 3.0 = 12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area		● 4 X 3.0 = 12
	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 = 12

Environmental Factors Score: 21 **65**

Total Score: 49 **129**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SCRIVER CREEK - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			<i>Result 1 to 4 (Least to Most Suitable)</i> 	
			● 4 X 1 =	4

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 =	12
	Displaces other developed uses		● 4 X 2.7 =	11
	Displaces irrigated agriculture		● 4 X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	● 4 X 2.1 =	8
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 =	8

Socioeconomic Factors Score: 28 **65**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐ 2 X 3.0 =	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◐ 3 X 3.0 =	9
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		● 4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 =	12

Environmental Factors Score: 21 **65**

Total Score: 49 **129**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - SCRIVER CREEK - 125,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 	4 X 1 = 4
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4 X 3.1 = 12
	Displaces other developed uses			4 X 2.7 = 11
	Displaces irrigated agriculture			4 X 3.1 = 12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4 X 1.5 = 6
	Eliminates noted fishing reach	Miles /10,000 AF		4 X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		4 X 2.1 = 8
	Displaces transmission line	Miles /10,000 AF		4 X 1.9 = 8

Socioeconomic Factors Score: 28 65

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4 X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		3 X 3.0 = 9
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		3 X 3.0 = 9
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4 X 3.0 = 12
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			1 X 3.0 = 3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4 X 3.1 = 12

Environmental Factors Score: 19 59

Total Score: 47 123

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SCRIVER CREEK - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input checked="" type="radio"/> 4 X 1 = 4	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/> 4 X 3.1 = 12	
	Displaces other developed uses		<input checked="" type="radio"/> 4 X 2.7 = 11	
	Displaces irrigated agriculture		<input checked="" type="radio"/> 4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/> 4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 2.1 = 8	
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.9 = 8	

Socioeconomic Factors Score: 28 **65**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input checked="" type="radio"/> 3 X 3.0 = 9	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/> 3 X 3.0 = 9	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input type="radio"/> 1 X 3.0 = 3	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.1 = 12	

Environmental Factors Score: 19 **59**

Total Score: 47 **123**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - SCRIVER CREEK - 200,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable) 4 X 1 = 4	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	4 X 2.1 = 8	
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	

Socioeconomic Factors Score: 28 **65**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	3 X 3.0 = 9	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	3 X 3.0 = 9	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following:			
	<input checked="" type="checkbox"/> Designated Roadless Area		1 X 3.0 = 3	
	<input type="checkbox"/> Research Natural Area			
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 19 **59**

Total Score: 47 **123**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SMITH FERRY - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/> 1 <input checked="" type="radio"/> X 1 = 1			
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.1 = 3			
	Displaces other developed uses		<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 2.7 = 11			
	Displaces irrigated agriculture		<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.1 = 12			
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 1.5 = 2			
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 1.8 = 7			
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 2.1 = 2			
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 1.9 = 2			

Socioeconomic Factors Score: 16 39

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.3 = 13			
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.0 = 3			
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.0 = 3			
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.0 = 12			
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.0 = 12			
	<input type="checkbox"/> Research Natural Area					
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.1 = 3			

Environmental Factors Score: 15 46

Total Score: 31 85

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SMITH FERRY - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/> 1 <input checked="" type="radio"/> X 1 = 1			
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.1 = 3			
	Displaces other developed uses		<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 2.7 = 11			
	Displaces irrigated agriculture		<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.1 = 12			
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 1.5 = 2			
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 1.8 = 7			
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 2.1 = 2			
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 1.9 = 2			

Socioeconomic Factors Score: 16 39

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.3 = 13			
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.0 = 3			
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.0 = 3			
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.0 = 12			
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.0 = 12			
	<input type="checkbox"/> Research Natural Area					
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.1 = 3			

Environmental Factors Score: 15 46

Total Score: 31 85

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SMITH FERRY - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition		<i>Result 1 to 4 (Least to Most Suitable)</i>					
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage		2	X	1 =	2

Socioeconomic Factors							
Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		1	X	3.1 =	3
	Displaces other developed uses			4	X	2.7 =	11
	Displaces irrigated agriculture			4	X	3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		1	X	1.5 =	2
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		1	X	2.1 =	2
	Displaces transmission line	Miles /10,000 AF		1	X	1.9 =	2
<u>Socioeconomic Factors Score:</u>						16	39

Environmental Factors							
Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		1	X	3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		1	X	3.0 =	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			4	X	3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		1	X	3.1 =	3
<u>Environmental Factors Score:</u>						15	46

<u>Total Score:</u>						31	85
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Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SMITH FERRY - 125,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable) 2 X 1 = 2	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	1 X 3.1 = 3	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	

Socioeconomic Factors Score: 16 **39**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	1 X 3.1 = 3	

Environmental Factors Score: 16 **49**

Total Score: 32 **88**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SMITH FERRY - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition		<i>Result 1 to 4 (Least to Most Suitable)</i>					
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	●	2	X	1	= 2

Socioeconomic Factors							
Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	○	1	X	3.1	= 3
	Displaces other developed uses		●	4	X	2.7	= 11
	Displaces irrigated agriculture		●	4	X	3.1	= 12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	○	1	X	1.5	= 2
	Eliminates noted fishing reach	Miles /10,000 AF	●	4	X	1.8	= 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	○	1	X	2.1	= 2
	Displaces transmission line	Miles /10,000 AF	○	1	X	1.9	= 2
<u>Socioeconomic Factors Score:</u>						16	39

Environmental Factors							
Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	●	4	X	3.3	= 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	○	1	X	3.0	= 3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◐	2	X	3.0	= 6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	●	4	X	3.0	= 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		●	4	X	3.0	= 12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	○	1	X	3.1	= 3
<u>Environmental Factors Score:</u>						16	49

<u>Total Score:</u>						32	88
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Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SMITH FERRY - 200,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition			<i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	2 X 1 = 2	

Socioeconomic Factors				
Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	1 X 3.1 = 3	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	1 X 1.5 = 2	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	
<u>Socioeconomic Factors Score:</u>			16	39

Environmental Factors				
Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	1 X 3.1 = 3	
<u>Environmental Factors Score:</u>			16	49

<u>Total Score:</u>			32	88
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Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SMITH FERRY - 250,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition			<i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	2 X 1 =	2

Socioeconomic Factors				
Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	1 X 3.1 =	3
	Displaces other developed uses		4 X 2.7 =	11
	Displaces irrigated agriculture		4 X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	1 X 1.5 =	2
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 =	2
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 =	2
<u>Socioeconomic Factors Score:</u>			16	39

Environmental Factors				
Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 =	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	1 X 3.1 =	3
<u>Environmental Factors Score:</u>			16	49

<u>Total Score:</u>			32	88
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Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SMITH FERRY - 300,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/> 1 <input checked="" type="radio"/> X 1 = 1			
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.1 = 3			
	Displaces other developed uses		<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 2.7 = 11			
	Displaces irrigated agriculture		<input type="radio"/> 1 <input checked="" type="radio"/> X 3.1 = 3			
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 1.5 = 2			
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 1.8 = 7			
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 2.1 = 2			
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 1.9 = 2			

Socioeconomic Factors Score: 13 30

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.3 = 13			
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.0 = 3			
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.0 = 3			
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.0 = 12			
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 <input checked="" type="radio"/> X 3.0 = 12			
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 <input checked="" type="radio"/> X 3.1 = 3			

Environmental Factors Score: 15 46

Total Score: 28 76

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **SMITH FERRY - 400,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/> 1 X 1 = 1	1

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 X 3.1 = 3	3
	Displaces other developed uses		<input type="radio"/> 1 X 2.7 = 3	3
	Displaces irrigated agriculture		<input type="radio"/> 1 X 3.1 = 3	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input type="radio"/> 1 X 1.5 = 2	2
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 1 X 2.1 = 2	2
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/> 1 X 1.9 = 2	2

Socioeconomic Factors Score: 10 22

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/> 1 X 3.0 = 3	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 X 3.0 = 12	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input type="radio"/> 1 X 3.1 = 3	3

Environmental Factors Score: 15 46

Total Score: 25 68

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - SOUTH FORK BOISE RIVER - 100,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 3 X 1 = 3	3
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	12
	Displaces other developed uses		4 X 2.7 = 11	11
	Displaces irrigated agriculture		4 X 3.1 = 12	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	1 X 1.5 = 2	2
	Eliminates noted fishing reach	Miles /10,000 AF	1 X 1.8 = 2	2
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2	2
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	8

Socioeconomic Factors Score: 19 49

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	1 X 3.3 = 3	3
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 = 3	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	1 X 3.0 = 3	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	1 X 3.0 = 3	3
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		1 X 3.0 = 3	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	1 X 3.1 = 3	3

Environmental Factors Score: 6 18

Total Score: 25 67

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **TRIPOD CREEK - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 3 X 1 = 3	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	

Socioeconomic Factors Score: 23 **55**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		4 X 3.0 = 12	
	<input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 24 **74**

Total Score: 47 **129**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **TRIPOD CREEK - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 3 X 1 = 3	3
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	12
	Displaces other developed uses		4 X 2.7 = 11	11
	Displaces irrigated agriculture		4 X 3.1 = 12	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	4
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	2

Socioeconomic Factors Score: 23 **55**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		4 X 3.0 = 12	12
	<input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	12

Environmental Factors Score: 24 **74**

Total Score: 47 **129**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **TRIPOD CREEK - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable) 3 X 1 = 3	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	

Socioeconomic Factors Score: 23 55

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 24 74

Total Score: 47 129

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **TRIPOD CREEK - 125,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 3 X 1 = 3	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	

Socioeconomic Factors Score: 23 **55**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		4 X 3.0 = 12	
	<input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 24 **74**

Total Score: 47 **129**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **TRIPOD CREEK - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			<i>Result 1 to 4 (Least to Most Suitable)</i> 3 X 1 = 3	3

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	12
	Displaces other developed uses		4 X 2.7 = 11	11
	Displaces irrigated agriculture		4 X 3.1 = 12	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	4
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	2

Socioeconomic Factors Score: 23 **55**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	12

Environmental Factors Score: 24 **74**

Total Score: 47 **129**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **TRIPOD CREEK - 200,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 3 X 1 = 3	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	

Socioeconomic Factors Score: 23 55

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following:			
	<input type="checkbox"/> Designated Roadless Area		4 X 3.0 = 12	
	<input type="checkbox"/> Research Natural Area			
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 24 74

Total Score: 47 129

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **TRIPOD CREEK - 250,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 3 X 1 = 3	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	

Socioeconomic Factors Score: 23 **55**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		4 X 3.0 = 12	
	<input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 24 **74**

Total Score: 47 **129**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **TRIPOD CREEK - 300,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 3 X 1 = 3	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	
	Displaces transmission line	Miles /10,000 AF	1 X 1.9 = 2	

Socioeconomic Factors Score: 23 **55**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	4 X 3.0 = 12	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 24 **74**

Total Score: 47 **129**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **TRIPOD CREEK - 400,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition			<i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage		3 X 1 = 3

Socioeconomic Factors				
Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4 X 3.1 = 12
	Displaces other developed uses			4 X 2.7 = 11
	Displaces irrigated agriculture			4 X 3.1 = 12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4 X 1.5 = 6
	Eliminates noted fishing reach	Miles /10,000 AF		4 X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2 X 2.1 = 4
	Displaces transmission line	Miles /10,000 AF		1 X 1.9 = 2
<u>Socioeconomic Factors Score:</u>			23	55

Environmental Factors				
Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4 X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		4 X 3.0 = 12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		4 X 3.0 = 12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4 X 3.0 = 12
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			1 X 3.0 = 3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4 X 3.1 = 12
<u>Environmental Factors Score:</u>			21	65

<u>Total Score:</u>			44	120
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Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **TWIN SPRINGS - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 4 X 1 = 4		
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12		
	Displaces other developed uses		4 X 2.7 = 11		
	Displaces irrigated agriculture		4 X 3.1 = 12		
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	1 X 1.5 = 2		
	Eliminates noted fishing reach	Miles /10,000 AF	1 X 1.8 = 2		
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	1 X 2.1 = 2		
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8		

Socioeconomic Factors Score: 19 **49**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	1 X 3.3 = 3		
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 = 3		
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	2 X 3.0 = 6		
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	1 X 3.0 = 3		
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		1 X 3.0 = 3		
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	1 X 3.1 = 3		

Environmental Factors Score: 7 **21**

Total Score: 26 **70**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER BIG WILLOW CREEK - 50 ,000 AF



		Level 2 Analysis				Relative
Factors	Criteria	Level 2 Data	Result Summary Score		Importance	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)		
			<input type="radio"/>	1 X 1 =	1

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4 X 3.1 =	12	
	Displaces other developed uses		<input checked="" type="radio"/>	4 X 2.7 =	11	
	Displaces irrigated agriculture		<input type="radio"/>	1 X 3.1 =	3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4 X 1.5 =	6	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 1.8 =	7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 2.1 =	8	
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 1.9 =	8	
Socioeconomic Factors Score:					25	56

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 3.3 =	13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/>	1 X 3.0 =	3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1 X 3.0 =	3	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4 X 3.0 =	12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/>	4 X 3.0 =	12	
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area					
	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 3.1 =	12	
Environmental Factors Score:					18	56

Total Score: **43** **111**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER BIG WILLOW CREEK - 75 ,000 AF



		Level 2 Analysis				Relative
Factors	Criteria	Level 2 Data	Result Summary Score		Importance	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)		
			<input type="radio"/>	1 X 1 =	1

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4 X 3.1 =	12
	Displaces other developed uses		<input checked="" type="radio"/>	4 X 2.7 =	11
	Displaces irrigated agriculture		<input type="radio"/>	1 X 3.1 =	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 2.1 =	8
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 1.9 =	8

Socioeconomic Factors Score: 25 56

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/>	1 X 3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1 X 3.0 =	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/>	4 X 3.0 =	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area				
	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 3.1 =	12

Environmental Factors Score: 18 56

Total Score: 43 111

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER BIG WILLOW CREEK - 100,000 AF



		Level 2 Analysis				Relative Importance
Factors	Criteria	Level 2 Data	Result Summary Score			

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)		
			<input type="radio"/>	1 X 1 =	1

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4 X 3.1 =	12	
	Displaces other developed uses		<input checked="" type="radio"/>	4 X 2.7 =	11	
	Displaces irrigated agriculture		<input type="radio"/>	1 X 3.1 =	3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4 X 1.5 =	6	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 1.8 =	7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 2.1 =	8	
	Displaces transmission line	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 1.9 =	8	
Socioeconomic Factors Score:					25	56

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 3.3 =	13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/>	1 X 3.0 =	3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input type="radio"/>	1 X 3.0 =	3	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4 X 3.0 =	12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/>	4 X 3.0 =	12	
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area					
	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4 X 3.1 =	12	
Environmental Factors Score:					18	56

Total Score:	43	111
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Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER BIG WILLOW CREEK - 125,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)	<input type="radio"/> 1 X 1 =	1	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●	4	X	3.1	=	12
	Displaces other developed uses		●	4	X	2.7	=	11
	Displaces irrigated agriculture		○	1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	●	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	●	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	●	4	X	2.1	=	8
	Displaces transmission line	Miles /10,000 AF	●	4	X	1.9	=	8

Socioeconomic Factors Score: 25 **56**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	●	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	○	1	X	3.0	=	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	○	1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	●	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		●	4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF	●	4	X	3.1	=	12

Environmental Factors Score: 18 **56**

Total Score: 43 **111**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER BIG WILLOW CREEK - 150,000 AF



Level 2 Analysis				
Factors	Criteria	Level 2 Data	Result Summary Score	Relative Importance

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">○</div> <div style="margin-right: 10px;">1</div> <div style="margin-right: 10px;">X</div> <div style="margin-right: 10px;">1</div> <div style="margin-right: 10px;">=</div> <div>1</div> </div>	<i>Result 1 to 4 (Least to Most Suitable)</i>
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●	4	X	3.1	=	12
	Displaces other developed uses		●	4	X	2.7	=	11
	Displaces irrigated agriculture		○	1	X	3.1	=	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	●	4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF	●	4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	●	4	X	2.1	=	8
	Displaces transmission line	Miles /10,000 AF	●	4	X	1.9	=	8

Socioeconomic Factors Score: 25 **56**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	●	4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	○	1	X	3.0	=	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	○	1	X	3.0	=	3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	●	4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		●	4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area							
	Designated Recreation River	Miles /10,000 AF	●	4	X	3.1	=	12

Environmental Factors Score: 18 **56**

Total Score: 43 **111**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER BIG WILLOW CREEK - 200,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)	○	1	X 1 = 1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		●	4	X 3.1 = 12
	Displaces other developed uses			●	4	X 2.7 = 11
	Displaces irrigated agriculture			○	1	X 3.1 = 3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		●	4	X 1.5 = 6
	Eliminates noted fishing reach	Miles /10,000 AF		●	4	X 1.8 = 7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		●	4	X 2.1 = 8
	Displaces transmission line	Miles /10,000 AF		●	4	X 1.9 = 8

Socioeconomic Factors Score: 25 **56**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		●	4	X 3.3 = 13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		◐	2	X 3.0 = 6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		○	1	X 3.0 = 3
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		●	4	X 3.0 = 12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			●	4	X 3.0 = 12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF		●	4	X 3.1 = 12

Environmental Factors Score: 19 **59**

Total Score: 44 **114**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER PAYETTE LAKE - 30,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	●	4	X 1 =	4
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●	4	X 3.1 =	12
	Displaces other developed uses		●	4	X 2.7 =	11
	Displaces irrigated agriculture		●	4	X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	○	1	X 1.5 =	2
	Eliminates noted fishing reach	Miles /10,000 AF	○	1	X 1.8 =	2
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	◐	2	X 2.1 =	4
	Displaces transmission line	Miles /10,000 AF	●	4	X 1.9 =	8

Socioeconomic Factors Score: 20 51

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	●	4	X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	●	4	X 3.0 =	12
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◐	2	X 3.0 =	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	●	4	X 3.0 =	12
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		○	1	X 3.0 =	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	○	1	X 3.1 =	3

Environmental Factors Score: 16 49

Total Score: 36 100

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER SHAFER CREEK - 50,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable) 2 X 1 = 2	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		2 X 3.1 = 6	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	2 X 2.1 = 4	
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	

Socioeconomic Factors Score: 24 **54**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	1 X 3.0 = 3	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 21 **65**

Total Score: 45 **119**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER SHAFER CREEK - 75,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			Result 1 to 4 (Least to Most Suitable) 2 X 1 = 2	2

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 =	12
	Displaces other developed uses		● 4 X 2.7 =	11
	Displaces irrigated agriculture		◐ 2 X 3.1 =	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	◐ 2 X 2.1 =	4
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 =	8

Socioeconomic Factors Score: 24 54

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	○ 1 X 3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	● 4 X 3.0 =	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		● 4 X 3.0 =	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area		● 4 X 3.0 =	12
	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 =	12

Environmental Factors Score: 21 65

Total Score: 45 119

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER SHAFER CREEK - 100,000 AF

High 1/3 
 Mid 1/3 
 Low 1/3 
 None 

Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			Result 1 to 4 (Least to Most Suitable)  2 X 1 = 2	2

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	 4 X 3.1 = 12	12
	Displaces other developed uses		 4 X 2.7 = 11	11
	Displaces irrigated agriculture		 2 X 3.1 = 6	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	 4 X 1.5 = 6	6
	Eliminates noted fishing reach	Miles /10,000 AF	 4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	 2 X 2.1 = 4	4
	Displaces transmission line	Miles /10,000 AF	 4 X 1.9 = 8	8

Socioeconomic Factors Score: 24 54

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	 4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	 1 X 3.0 = 3	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	 4 X 3.0 = 12	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	 4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		 4 X 3.0 = 12	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area		 4 X 3.0 = 12	12
	Designated Recreation River	Miles /10,000 AF	 4 X 3.1 = 12	12

Environmental Factors Score: 21 65

Total Score: 45 119

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER SHAFER CREEK - 125,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage		2	X	1	=	2
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			2	X	3.1	=	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2	X	2.1	=	4
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 24 **54**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		4	X	3.0	=	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 22 **68**

Total Score: 46 **122**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER SHAFER CREEK - 150,000 AF



		Level 2 Analysis				Relative
Factors	Criteria	Level 2 Data	Result Summary Score		Importance	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)		
				2 X 1 =	2

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4 X 3.1 =	12
	Displaces other developed uses			4 X 2.7 =	11
	Displaces irrigated agriculture			2 X 3.1 =	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF		4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2 X 2.1 =	4
	Displaces transmission line	Miles /10,000 AF		4 X 1.9 =	8

Socioeconomic Factors Score: 24 54

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2 X 3.0 =	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		4 X 3.0 =	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area			4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4 X 3.1 =	12

Environmental Factors Score: 22 68

Total Score: 46 122

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER SHAFER CREEK - 200,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> 2 X 1 = 2	
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	
	Displaces other developed uses		4 X 2.7 = 11	
	Displaces irrigated agriculture		2 X 3.1 = 6	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	3 X 2.1 = 6	
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	

Socioeconomic Factors Score: 25 57

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	2 X 3.0 = 6	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	

Environmental Factors Score: 22 68

Total Score: 47 124

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER SHAFER CREEK - 250,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage		2	X	1	=	2
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			2	X	3.1	=	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		3	X	2.1	=	6
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 25 **57**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		4	X	3.0	=	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 22 **68**

Total Score: 47 **124**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER SHAFER CREEK - 300,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage		2	X	1	=	2
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4	X	3.1	=	12
	Displaces other developed uses			4	X	2.7	=	11
	Displaces irrigated agriculture			2	X	3.1	=	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4	X	1.5	=	6
	Eliminates noted fishing reach	Miles /10,000 AF		4	X	1.8	=	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		3	X	2.1	=	6
	Displaces transmission line	Miles /10,000 AF		4	X	1.9	=	8

Socioeconomic Factors Score: 25 **57**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4	X	3.3	=	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2	X	3.0	=	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		4	X	3.0	=	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4	X	3.0	=	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4	X	3.0	=	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area			4	X	3.0	=	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF		4	X	3.1	=	12

Environmental Factors Score: 22 **68**

Total Score: 47 **124**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER SHAFER CREEK - 400,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> 3 X 1 = 3	3
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 = 12	12
	Displaces other developed uses		4 X 2.7 = 11	11
	Displaces irrigated agriculture		2 X 3.1 = 6	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 = 6	6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 = 7	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	3 X 2.1 = 6	6
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 = 8	8

Socioeconomic Factors Score: 25 **57**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 = 13	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	2 X 3.0 = 6	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	4 X 3.0 = 12	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 = 12	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		4 X 3.0 = 12	12
	<input type="checkbox"/> Research Natural Area		4 X 3.0 = 12	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 = 12	12

Environmental Factors Score: 22 **68**

Total Score: 47 **124**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **UPPER SQUAW CREEK - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1 =	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1 =	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7 =	11
	Displaces irrigated agriculture		<input type="radio"/>	2	X	3.1 =	6
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	1	X	2.1 =	2
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/>	1	X	1.9 =	2

Socioeconomic Factors Score: 20 47

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/>	1	X	3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0 =	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/>	4	X	3.0 =	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1 =	12

Environmental Factors Score: 21 65

Total Score: 41 111

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **UPPER SQUAW CREEK - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<i>Result 1 to 4 (Least to Most Suitable)</i> <input type="radio"/>	1	X	1 =	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input checked="" type="radio"/>	4	X	3.1 =	12
	Displaces other developed uses		<input checked="" type="radio"/>	4	X	2.7 =	11
	Displaces irrigated agriculture		<input type="radio"/>	1	X	3.1 =	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/>	4	X	1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/>	1	X	2.1 =	2
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/>	1	X	1.9 =	2

Socioeconomic Factors Score: 19 **44**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/>	1	X	3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0 =	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/>	4	X	3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/>	4	X	3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/>	4	X	3.1 =	12

Environmental Factors Score: 21 **65**

Total Score: 40 **108**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER SQUAW CREEK - 100,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary	Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable)	○	1	X	1 =	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		●	4	X	3.1 =	12
	Displaces other developed uses			●	4	X	2.7 =	11
	Displaces irrigated agriculture			○	1	X	3.1 =	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		●	4	X	1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF		●	4	X	1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		◐	2	X	2.1 =	4
	Displaces transmission line	Miles /10,000 AF		○	1	X	1.9 =	2

Socioeconomic Factors Score: 20 46

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		●	4	X	3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		◐	2	X	3.0 =	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		●	4	X	3.0 =	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		●	4	X	3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			●	4	X	3.0 =	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF		●	4	X	3.1 =	12

Environmental Factors Score: 22 68

Total Score: 42 113

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER SQUAW CREEK - 125,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result 1 to 4 (Least to Most Suitable) 	1 X 1 =	1
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage		4 X 3.1 =	12
	Displaces other developed uses			4 X 2.7 =	11
	Displaces irrigated agriculture			1 X 3.1 =	3
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF		4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF		4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF		2 X 2.1 =	4
	Displaces transmission line	Miles /10,000 AF		1 X 1.9 =	2

Socioeconomic Factors Score: 20 46

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF		4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF		2 X 3.0 =	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF		4 X 3.0 =	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF		4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area			4 X 3.0 =	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF		4 X 3.1 =	12

Environmental Factors Score: 22 68

Total Score: 42 113

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER SQUAW CREEK - 150,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			Result 1 to 4 (Least to Most Suitable) <input type="radio"/> 1 X 1 = 1	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 = 12	
	Displaces other developed uses		● 4 X 2.7 = 11	
	Displaces irrigated agriculture		○ 1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	◐ 2 X 2.1 = 4	
	Displaces transmission line	Miles /10,000 AF	○ 1 X 1.9 = 2	

Socioeconomic Factors Score: 20 46

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐ 2 X 3.0 = 6	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	● 4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		● 4 X 3.0 = 12	
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area		● 4 X 3.0 = 12	
	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 = 12	

Environmental Factors Score: 22 68

Total Score: 42 113

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - UPPER SQUAW CREEK - 200,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

			Result Summary Score	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div> <input type="radio"/> 1 X 1 = 1	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	<input type="radio"/> 1 X 3.1 = 3	
	Displaces other developed uses		<input checked="" type="radio"/> 4 X 2.7 = 11	
	Displaces irrigated agriculture		<input type="radio"/> 1 X 3.1 = 3	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	<input checked="" type="radio"/> 4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	<input type="radio"/> 2 X 2.1 = 4	
	Displaces transmission line	Miles /10,000 AF	<input type="radio"/> 1 X 1.9 = 2	

Socioeconomic Factors Score: 17 36

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	<input type="radio"/> 2 X 3.0 = 6	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	<input checked="" type="radio"/> 4 X 3.0 = 12	
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		<input checked="" type="radio"/> 4 X 3.0 = 12	
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area		<input checked="" type="radio"/> 4 X 3.0 = 12	
	Designated Recreation River	Miles /10,000 AF	<input checked="" type="radio"/> 4 X 3.1 = 12	

Environmental Factors Score: 22 68

Total Score: 39 104

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - WARM SPRING CREEK - 50,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			<i>Result 1 to 4 (Least to Most Suitable)</i>	
			● 4 X 1 = 4	

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 = 12	
	Displaces other developed uses		● 4 X 2.7 = 11	
	Displaces irrigated agriculture		● 4 X 3.1 = 12	
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 = 6	
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 = 7	
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	● 4 X 2.1 = 8	
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 = 8	

Socioeconomic Factors Score: 28 **65**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 = 13	
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐ 2 X 3.0 = 6	
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◐ 2 X 3.0 = 6	
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 = 12	
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		○ 1 X 3.0 = 3	
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 = 12	

Environmental Factors Score: 17 **53**

Total Score: 45 **117**

Boise/Payette Basin Storage Assessment

Surface Storage Site Evaluation and Comparison Process

Level 2 Analysis Worksheet - WARM SPRING CREEK - 75,000 AF



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
			Result Summary Score	

Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	<div style="text-align: right; font-size: small;">Result 1 to 4 (Least to Most Suitable)</div>	4
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Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 =	12
	Displaces other developed uses		● 4 X 2.7 =	11
	Displaces irrigated agriculture		● 4 X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	● 4 X 2.1 =	8
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 =	8

Socioeconomic Factors Score: 28 65

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐ 2 X 3.0 =	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◐ 2 X 3.0 =	6
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 =	12
	Located in one of the following: <input checked="" type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		○ 1 X 3.0 =	3
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 =	12

Environmental Factors Score: 17 53

Total Score: 45 117

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **WASH CREEK - 50,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Result	Summary Score	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	●	4	X	1 =	4
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*Result 1 to 4
(Least to Most Suitable)*

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	●	4	X	3.1 =	12
	Displaces other developed uses		●	4	X	2.7 =	11
	Displaces irrigated agriculture		●	4	X	3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	●	4	X	1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	●	4	X	1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	●	4	X	2.1 =	8
	Displaces transmission line	Miles /10,000 AF	●	4	X	1.9 =	8

Socioeconomic Factors Score: 28 65

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	●	4	X	3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	○	1	X	3.0 =	3
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	●	4	X	3.0 =	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	●	4	X	3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area		●	4	X	3.0 =	12
Protected Land/River Status: State	<input type="checkbox"/> Research Natural Area Designated Recreation River	Miles /10,000 AF	●	4	X	3.1 =	12

Environmental Factors Score: 21 65

Total Score: 49 129

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **WASH CREEK - 75,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			<i>Result 1 to 4 (Least to Most Suitable)</i> 	4

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 =	12
	Displaces other developed uses		● 4 X 2.7 =	11
	Displaces irrigated agriculture		● 4 X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	● 4 X 2.1 =	8
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 =	8

Socioeconomic Factors Score: 28 **65**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐ 2 X 3.0 =	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	● 4 X 3.0 =	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		● 4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 =	12

Environmental Factors Score: 22 **68**

Total Score: 50 **132**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **WASH CREEK - 100,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

			Result Summary Score <i>Result 1 to 4 (Least to Most Suitable)</i>	
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	● 4 X 1 =	4

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 =	12
	Displaces other developed uses		● 4 X 2.7 =	11
	Displaces irrigated agriculture		● 4 X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	● 4 X 2.1 =	8
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 =	8

Socioeconomic Factors Score: 28 **65**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐ 2 X 3.0 =	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	● 4 X 3.0 =	12
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		● 4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 =	12

Environmental Factors Score: 22 **68**

Total Score: 50 **132**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **WASH CREEK - 125,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Factors	Criteria	Level 2 Data	Result Summary Score	Relative Importance
<i>Result 1 to 4 (Least to Most Suitable)</i>				
Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	4 X 1 =	4

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	4 X 3.1 =	12
	Displaces other developed uses		4 X 2.7 =	11
	Displaces irrigated agriculture		4 X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	4 X 2.1 =	8
	Displaces transmission line	Miles /10,000 AF	4 X 1.9 =	8

Socioeconomic Factors Score: 28 **65**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	2 X 3.0 =	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	3 X 3.0 =	9
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	4 X 3.1 =	12

Environmental Factors Score: 21 **65**

Total Score: 49 **129**

Boise/Payette Basin Storage Assessment
Surface Storage Site Evaluation and Comparison Process
 Level 2 Analysis Worksheet - **WASH CREEK - 150,000 AF**



Factors	Criteria	Level 2 Data	Level 2 Analysis	Relative Importance
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Land Acquisition

Land Ownership	Private vs. Public Ownership	Acres private/10,000 AF storage	Result Summary Score	Relative Importance
			<i>Result 1 to 4 (Least to Most Suitable)</i> 	4

Socioeconomic Factors

Existing Land Use	Displaces urban uses	Acres /10,000 AF storage	● 4 X 3.1 =	12
	Displaces other developed uses		● 4 X 2.7 =	11
	Displaces irrigated agriculture		● 4 X 3.1 =	12
Recreation	Displaces recreation site(s)	Number of sites /10,000 AF	● 4 X 1.5 =	6
	Eliminates noted fishing reach	Miles /10,000 AF	● 4 X 1.8 =	7
Infrastructure	Displaces road/highway/railroads	Miles /10,000 AF	● 4 X 2.1 =	8
	Displaces transmission line	Miles /10,000 AF	● 4 X 1.9 =	8

Socioeconomic Factors Score: 28 **65**

Environmental Factors

Federal ESA Species	Removes Bull Trout habitat (migratory, over-wintering or proposed critical)	Miles /10,000 AF	● 4 X 3.3 =	13
State Species of Special Concern	Removes species habitat (Redband Trout)	Miles /10,000 AF	◐ 2 X 3.0 =	6
State and Federally Listed Terrestrial Species Habitat	Removes species habitat	Acres /10,000 AF	◑ 3 X 3.0 =	9
Protected Land/River Status: Federal	Candidate Wild & Scenic	Acres /10,000 AF	● 4 X 3.0 =	12
	Located in one of the following: <input type="checkbox"/> Designated Roadless Area <input type="checkbox"/> Research Natural Area		● 4 X 3.0 =	12
Protected Land/River Status: State	Designated Recreation River	Miles /10,000 AF	● 4 X 3.1 =	12

Environmental Factors Score: 21 **65**

Total Score: 49 **129**

Appendix H

Development of Construction Costs

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APPENDIX H

Development of Construction Costs

Pre-appraisal, reconnaissance-level field (direct) construction cost estimates were prepared for potential new storage opportunities for consideration during future planning, investigations, and site comparisons. Rough field construction cost estimates of project features are commonly developed during pre-appraisal, reconnaissance-level assessment for the purpose of comparing alternative sites and determining/comparing the size and scope of development.

Civil engineering works of this type (reservoirs, dikes, diversions, dams, pipelines, etc.) are very site-specific. Initial cost evaluations are generally completed in a series of steps from map studies during appraisal/feasibility-level analysis, to more detailed site visits (including surveying and geologic evaluation) that support conceptual design development, and preliminary and final design. Thus, project development is an iterative process, where cost estimates are revised as more details of the site are developed. As project details are developed, the accuracy and dependability of the cost estimates increase.

In addition to the cost of the dam/reservoir itself, other costs associated with access roads, relocations, property, design costs, etc. also need to be considered. At this pre-appraisal, reconnaissance-level of project development, cost estimates are useful for a very rough comparison, screening, and evaluation of projects. Future phases of analysis (appraisal-/feasibility-level) generally include survey, geologic investigation, drilling, sampling, and testing of foundation and borrow materials to assess the feasibility of any project. Despite these best engineering efforts, additional surprises can still occur during construction (that may result in change orders). Thus, the design of a dam/reservoir is not completed until the construction is completed and the reservoir and dam are functioning satisfactorily.

H.1 Non-Field Costs

Field costs are not the total cost necessary to complete a project, and do not include costs such as engineering, contract administration, land acquisition, permitting, environmental documentation, or mitigation. Total costs for project implementation would be substantially larger than the estimated field construction costs. Because new reservoir siting and development projects are not common in today's political environment, non-field costs related to permitting, environmental documentation, or mitigation are unknown at this time. Reclamation records and industry standards suggest that non-field costs might constitute up to 25 percent of field costs. Thus, total costs for project implementation would be substantially larger than the estimated field construction costs.

H.2 Field Costs

All field costs are indexed up to 2010 dollars and include allowances for mobilization, unlisted items, and contingencies as a percentage of the subtotal field construction cost, as follows:

- Mobilization at 5 percent
- Unlisted items at 10 percent
- Contingencies at 25 percent

Field costs were prepared using unit costs for the major facilities that would comprise the overall project—specifically, pump stations, pipelines, and the reservoirs themselves. The following sections describe the approach, assumptions, and unit costs used to prepare the estimates for these major components.

H.2.1 Pump Stations

Pump station costs were extended from a unit price of \$2,000 per horsepower, representing a typical pre-appraisal-level cost for a facility consisting of a simple building, a spare pump, and other standard components, but no emergency generators or custom architectural treatments. Assumptions and approach for estimating horsepower were as follows:

- Static pumping head was estimated based on the elevation difference between the water source (typically the Boise or Payette River or one of their respective forks) at a location in immediate proximity to the offsite reservoir, versus the elevation of the apparent high point along the pipeline route.
- It was assumed that siphoning over the high points would not be feasible because of the magnitude of the vacuum that would be developed in most cases.
- Tunneling was not considered at this stage as a means of reducing static lift.
- Friction losses through the pipeline contributing to total dynamic pumping head were estimated using the Hazen Williams equation with a C factor of 130, which is typical for the types of pipe expected and some degree of aging of the pipe material.
- Costs were based on a single pump station, rather than multiple pump stations in series. The latter configuration may ultimately prove more feasible and alter costs to some degree.
- Design flows were estimated as described in Section 4.2.4.

H.2.2 Pipelines

Pipeline costs were extended from a unit price of \$10 per-inch-diameter per-foot length, representing a typical open-trench installation of large-diameter pipe and appurtenances. Pipe would likely be welded steel with provisions for corrosion and/or cathodic protection. Assumptions and approach for estimating horsepower were as follows:

- Pipeline lengths were estimated by simple scaling of a straight line from the water source to the reservoir site, plus an approximate 25 percent allowance to cover deviations in the alignment.
- Costs were based on a single large pipeline, rather than multiple smaller pipelines in a common trench.
- Tunneling was not considered at this stage as an alternative to open trenching, but could ultimately prove to provide some economies in certain areas.
- Design flows were estimated as described in Section 4.2.4.
- Pipe diameter was sized based on an average flow velocity of 7 cuffs, commonly used as a rule of thumb in balancing pipe costs with friction losses and pumping costs.

- The topography and geology along the pipe line route have a great effect on the construction cost of a pipeline. Access to the alignment, stability of the route, trench excavation, environmental sensitive areas, stream crossing, etc. will affect the cost of the project. Thus, until site-specific information becomes available, these costs provide only a rough comparative cost.

H.2.3 Reservoirs

Construction costs for the reservoirs primarily represent the cost of the dam or dikes plus the hydraulic structures. At the pre-appraisal, reconnaissance-level stage of project evaluation, many assumptions were made because specific information (primarily detailed topography and geology) is not available. To compare sites, a very general cost per acre foot was applied during this initial cost screening of potential reservoir sites, which reflects the assumption that all sites are generally similar, with the volume of storage being the major discriminator.

Construction costs for several reservoir projects with a wide range of reservoir capacities were extended from unit costs based on volume of storage. A collection of construction costs for a broad variety of projects constructed over the past several decades by various agencies was used to develop a cost table that was indexed up to the present using annual price indexes, and indexed up to 2010 dollars using 5 percent inflation per year.

During future phases of analysis, more detailed information can be developed and these costs can be refined in an iterative process. This information includes topography and geology (which determine the foundation and type of dam/dike), as well as foundation and reservoir bottom treatment (including cutoff trenches, grout curtains, and dewatering).

As more information is developed, various dam types, including earth fill, rock fill, concrete, and roller-compacted concrete can be evaluated for compatibility with the site. Also, availability of suitable construction materials for the dam components can be evaluated, such as core, filters, drain, shell, and random for embankment dams/dikes or concrete aggregate for concrete or RCC dams.

The hydraulic structures (intakes, outlets works, spillway, and diversion works, etc.) can also represent a large part of construction costs and can be evaluated in conjunction with the reservoir.

H.2.4 Design Flows, Exceptions, and Other General Elements of Facility Sizing and Costing

Design flows for pipelines and pump stations were estimated using available flow records or modeling results for the applicable reaches of the source streams. Conveyance and pumping structures were sized for costing purposes to accommodate peak flows that would be expected only 10 percent of the time and represent relatively high volumes. Peak flow rates were selected wherever possible such that a given reservoir would be filled in the 2- to 4-month late spring/early summer runoff period at a rate that would not completely deplete downstream flows in the system. This approach assumed a more concentrated and abbreviated diversions period to storage. This provides a more conservative cost basis in the event that water rights, instream flow requirements, or environmental restrictions dictate shorter diversion periods and larger facilities.

In the larger reservoir and smaller watershed situations, where estimated flows would not fill the reservoir 10 percent of the time, the approach was to select a peak design flow similar to that of the highest estimated monthly flows. In this case, it is assumed that the reservoir could only be filled in wetter years, and capacity would be available in those instances.

The following list summarizes other key assumptions and exceptions to the cost estimating approach:

- Does not include any costs to distribute stored water from the new reservoirs to downstream uses.
- Does not include diversion facilities at the water source (e.g., weirs or dams across the stream to control or enhance diversions).
- Does not include any hydropower facilities as a means of offsetting annual pumping costs.
- For cases in which the diverted water from the source is discharged well upstream of the new reservoir, it is assumed that the channel has adequate capacity to convey the peak flows down to the reservoir, and no costs for enlargement or channel modifications are included.

H.3 Summary of Field Costs

Field cost estimates are summarized in Table H-1. These costs only cover potential new facilities; cost estimates associated with retrofitting existing facilities are summarized and referenced in the Literature Report (Appendix D).

Table H-1. Summary of Field Cost Estimates by New “Area of Opportunity”

Area of Opportunity	Reservoir Capacity Range (AF)	Cost Range (Millions)
1 – South Fork Boise	100,000	\$410-600
2 – North Fork/Middle Fork Boise	100,000	\$150-380
3 – Lower South Fork Payette	50,000-300,000	\$170-1,290*
4 – Lower North Fork Payette	50,000-300,000	\$170-1,200*
5 – Mainstem Payette	50,000-300,000	\$190-1,200*
6 – Lower Payette	50,000-300,000	\$140-450

*Costs for larger reservoir projects in these “areas of opportunity” are greatly influenced by the cost of pumping facilities necessary for inter-basin and/or trans-basin transfer.

These ranges reflect the limited site-specific information available during the pre-appraisal/reconnaissance-level assessment. The lower-end costs are associated with on-stream facilities that do not require pump stations or pipelines, or off-stream facilities that are located relatively near to their source water. Many of the higher-end costs associated with inter-basin and/or trans-basin transfers are related to high pump station costs associated with the larger reservoir sizes. If larger reservoirs are sited in areas that do not require pumping in between basins, the higher-end costs could decrease.

Appendix I

Definitions

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APPENDIX I

Definitions

Active capacity. The reservoir capacity normally usable for storage and regulation of reservoir inflows to meet established reservoir operating requirements. It extends from the highest of either the top of exclusive flood control capacity, the top of joint use capacity, or the top of active conservation capacity, to the top of inactive capacity. It is also the total capacity less the sum of the inactive and dead capacities. The reservoir capacity that can be used for irrigation, power, municipal and industrial use, fish and wildlife, recreation, water quality, and other purposes.

Alternatives. Courses of action that may meet the objectives of a proposal at varying levels of accomplishment, including the most likely future conditions without the project or action.

Appraisal-level of detail. The level of detail necessary to facilitate making decisions on whether or not to proceed with a detailed study and evaluation of any alternative.

Appraisal study (appraisal report). A study incorporating an appraisal-level of detail.

Arid. A term describing a climate or region in which precipitation is so deficient in quantity or occurs so infrequently that intensive agricultural production is not possible without irrigation.

Authorization. An act by the Congress of the United States which authorizes use of public funds to carry out a prescribed action.

Authorized Reclamation project. A congressionally approved Bureau of Reclamation project that has been authorized for specific purposes.

Average. The arithmetic mean. The sum of the values divided by the number of values.

Baseline (condition or alternative). Conditions that would prevail if no actions were taken.

Candidate species. Plant or animal species that are candidates for designation as endangered (in danger of becoming extinct) or threatened (likely to become endangered), but is undergoing status review by the USFWS.

Channel. Natural or artificial watercourse of perceptible extent, with a definite bed and banks to confine and conduct continuously or periodically flowing water. Rivers and streams. A general term

Conservation. Increasing the efficiency of energy use, water use, production, or distribution.

Consumptive use. A use which lessens the amount of water available for another use. Water uses normally associated with man's activities, primarily municipal, industrial, and irrigation uses that deplete water supplies. Water removed from available supplies without direct return to a water resource system, for uses such as manufacturing, agriculture, and food preparation. A nonconsumptive use would be one such as boating or swimming. Combined amounts of water needed for transpiration by vegetation and for evaporation from adjacent soil, snow, or

intercepted precipitation. Also called: crop requirement, crop irrigation requirement, consumptive use requirement.

Consumptive water use. Total amount of water used by vegetation, man's activities, and evaporation of surface water.

Critical habitat. Defined in Section 3(5)(A) of the ESA as:

(1) The specific areas within the geographical area occupied by the species at the time it is listed, on which are found those physical and biological features essential to the conservation of the listed species and which may require special management considerations for protection; and

(2) Specific areas outside the geographical area occupied by a species at the time it is listed upon a determination by the Secretary of the Department of Interior that such areas are essential for the conservation of the species. These areas have been legally designated via Federal Register notices.

Cubic feet per second (cfs or ft³/s). A unit of discharge for measurement of a flowing liquid equal to a flow of 1 cfs (448.8 gallons per minute (gpm), 7.48 gallons per second, or 1.98 AF per day). A rate of streamflow; the volume, in cubic feet, of water passing a reference point in 1 second.

CWA. Clean Water Act, California Waterfowl Association.

Dam. A barrier built across a watercourse to impound or divert water. A barrier that obstructs, directs, retards, or stores the flow of water. Usually built across a stream. A structure built to hold back a flow of water.

Delivery. The amount of water delivered to the point of use. The difference between delivery and release is usually the same as consumptive use.

Demand. Rate at which electric energy is used, expressed in kilowatts, whether at a given instant, or averaged over any designated period of time. Maximum water use under a specified condition.

Dewatering As opposed to unwatering, dewatering is the removal and control of ground water from pores or other open spaces in soil or rock formations to the extent that allows construction activities to proceed as intended, including the relief of ground water pressure. Removing water by pumping, drainage, or evaporation. The removal of ground water and seepage from below the surface of the ground or other surfaces through the use of deep wells and wellpoints.

Discharge. Volume of water that passes a given point within a given period of time. Any spilling, leaking, pumping, pouring, emitting, emptying, or dumping not including permitted activities in compliance with section 402 of the CWA.

District. An entity that has a contract with the Bureau of Reclamation for the delivery of irrigation water. Such entities include, but are not limited to: canal companies, conservancy districts, ditch companies, irrigation and drainage districts, irrigation companies, irrigation

districts, reclamation districts, service districts, storage districts, water districts, and water users associations.

Diversion. A process which, having return flow and consumptive use elements, turns water from a given path. Removal of water from its natural channel for human use. Use of part of a stream flow as a water supply. Channel constructed across the slope for the purpose of intercepting surface runoff, changing the accustomed course of all or part of a stream. A structural conveyance (or ditch) constructed across a slope to intercept runoff flowing down a hillside, and divert it to some convenient discharge point.

Diversion channel (canal or tunnel). A waterway used to divert water from its natural course. The term generally applies to a temporary arrangement (e.g., to bypass water around a damsite during construction). Channel is normally used instead of canal when the waterway is short. Occasionally the term is applied to a permanent arrangement (diversion canal, diversion tunnel, diversion aqueducts).

Diversion dam. A dam built to divert water from a waterway or stream into a different watercourse.

Diversion inlet. A conduit or tunnel upstream from an intake structure. Diversion inlet may be integral with the outlet works or be part of a separate conveyance structure that will only be used during construction.

Drainage. Process of removing surface or subsurface water from a soil or area. A technique to improve the productivity of some agricultural land by removing excess water from the soil; surface drainage is accomplished with open ditches; subsurface drainage uses porous conduits (drain tile) buried beneath the soil surface.

Drainage area. The area which drains to a particular point on a river or stream. The drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point.

Drainage basin. All of the area drained by a river system. The drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water. The area of land that drains its water into a river.

Drainage system. Collection of surface and/or subsurface drains, together with structures and pumps, used to remove surface or ground water.

Drawdown. Lowering of a reservoir's water level; process of depleting a reservoir or ground water storage. The drop in the water table or level of water in the ground when water is being pumped from a well. Vertical distance the free water surface elevation is lowered or the reduction of the pressure head due to the removal of free water. The difference between a water level and a lower water level in a reservoir within a particular time. The amount of water used from a reservoir.

Dredge. To dig under water. A machine that digs under water.

Drought. Climatic condition in which there is insufficient soil moisture available for normal vegetative growth. A prolonged period of below-average precipitation.

Economic analysis. A procedure that includes both tangible and intangible factors to evaluate various alternatives.

Elevation. The height of a point above a plane of reference. Generally refers to the height above sea level.

Endangered species. A species or subspecies whose survival is in danger of extinction throughout all or a significant portion of its range.

Endangered species act (ESA). This act provides a framework for the protection of endangered and threatened species.

Environment. All biological, chemical, social, and physical factors to which organisms are exposed. The surroundings that affect the growth and development of an organism.

Environmental assessment (EA). A National Environmental Policy Act (NEPA) compliance document used to determine if an action would have a significant effect on the human environment. If not, a finding of no significant impact (FONSI) is written. If so, an environmental impact statement (EIS) is written.

Environmental impact statement (EIS). A NEPA compliance document used to evaluate a range of alternatives when solving the problem would have a significant effect on the human environment. The EIS is more than a document, it is a formal analysis process which mandates public comment periods. An EIS covers purpose and need, alternatives, existing conditions, environmental consequences, and consultation and coordination.

Environmental Protection Agency (EPA). The Environmental Protection Agency's mission is to protect human health and to safeguard the natural environment.

ESA. Endangered Species Act (of 1973).

Facilities. Structures associated with Reclamation irrigation projects, municipal and industrial water systems, power generation facilities, including all storage, conveyance, distribution, and drainage systems.

Federal organizations. Agencies, departments, or their components of the Federal Government that have a role in dam safety emergency planning and preparedness (i.e., Reclamation, U.S. Army Corps of Engineers, National Weather Service, etc.).

Fill. Manmade deposits of natural soils or the process of the depositing. Manmade deposits of natural soils or rock products and waste materials designed and installed in such a manner as to provide drainage, yet prevent the movement of soil particles due to flowing water. An earth or broken rock structure or embankment. Soil or loose rock used to raise a grade. Soil that has no value except as bulk.

Flood. A temporary rise in water levels resulting in inundation of areas not normally covered by water. May be expressed in terms of probability of exceedance per year such as 1-percent

chance flood or expressed as a fraction of the probable maximum flood or other reference flood.

Flood plain. Nearly level land, susceptible to floods, that forms the bottom of a valley. An area, adjoining a body of water or natural stream, that has been or may be covered by floodwater.

Flow. Volume of water that passes a given point within a given period of time.

Flow augmentation. The release of water stored in a reservoir or other impoundment to increase the natural flow of a stream.

Foundation. Lower part of a structure that transmits loads directly to the soil. The excavated surface upon which a dam is placed.

Full pool. Volume of water in a reservoir at normal water surface. The reservoir level that would be attained when the reservoir is fully utilized for all project purposes, including flood control.

Gaging station. A particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Gauge (gage). Device for registering water level, discharge, velocity, pressure, etc. Thickness of wire or sheet metal. A number that defines the thickness of the sheet used to make steel pipe. The larger the number, the thinner the pipe wall.

Ground water. Water that flows or seeps downward and saturates soil or rock, supplying springs and wells. The upper level of the saturated zone is called the water table. Water stored underground in rock crevices and in the pores of geologic materials that make up the earth's crust. That part of the subsurface water which is in the zone of saturation; phreatic water. Water found underground in porous rock strata and soils, as in a spring. Water under ground, such as in wells, springs and aquifers. Generally, all subsurface water as distinct from surface water; specifically, that part of the subsurface water in the saturated zone where the water is under pressure greater than atmospheric.

Ground water table. The upper boundary of ground water where water pressure is equal to atmospheric pressure, i.e., water level in a bore hole after equilibrium when ground water can freely enter the hole from the sides and bottom.

Habitat. The area or type of environment in which a plant or animal normally lives or occurs.

Hydroelectric plant. Electric powerplant using falling water as its motive force. A power plant that produces electricity from the power of rushing water turning turbine-generators.

Hydroelectric power. Electrical energy produced by flowing water.

Hydrologic unit code. An eight-digit number used to identify a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature.

Hydrology. Scientific study of water in nature: its properties, distribution, and behavior. The science that treats the occurrence, circulation properties, and distribution of the waters of the earth and their reaction to the environment. Science dealing with the properties, distribution and flow of water on or in the earth.

Impoundment. Body of water created by a dam.

Improvement. Structural measures for the betterment, modernization, or enhancement of an existing facility or system to improve the social, economic, and environmental benefits of the project.

Inflow. Water that flows into a body of water. The amount of water entering a reservoir expressed in AF per day or cfs.

Inlet channel (inlet structure). Concrete lined portion of spillway between approach channel and gate or crest structure.

Instream flow requirements. Amount of water flowing through a defined stream channel needed to sustain instream values, e.g. flows designated for fish and wildlife.

Instream uses. Water uses that can be carried out without removing the water from its source, as in navigation and recreation.

Inundate. To cover with impounded waters or floodwaters.

Irrigation. Act of supplying dry land with water in order to grow crops or other plants. Application of water to lands for agricultural purposes.

Irrigation district. A cooperative, self-governing public corporation set up as a subdivision of the State government, with definite geographic boundaries, organized and having taxing power to obtain and distribute water for irrigation of lands within the district; created under the authority of a State legislature with the consent of a designated fraction of the landowners or citizens.

Juvenile. Young fish older than 1 year but not capable of reproduction.

Levee. A natural or man-made barrier that helps keep rivers from overflowing their banks.

Mainstream (mainstem). The main course of a stream where the current is the strongest.

Maintenance. All routine and extraordinary work necessary to keep the facilities in good repair and reliable working order to fulfill the intended designed project purposes. Maintaining structures and equipment in intended operating condition, equipment repair, and minor structure repair.

Maximum water surface (maximum pool). The highest acceptable water surface elevation with all factors affecting the safety of the structure considered. It is the highest water surface elevation resulting from a computed routing of the inflow design flood through the reservoir under established operating criteria. This surface elevation is also the top of the surcharge capacity.

Minimum flow. Negotiated lowest flow in a regulated stream that will sustain an aquatic population of agreed-upon levels. Flow may vary seasonally. Lowest flow in a specified period of time. Possibly define as minimum instream flow.

Mitigation (measures). Methods or plans to reduce, offset, or eliminate adverse project impacts. Action taken to avoid, reduce the severity of, or eliminate an adverse impact. Mitigation can include one or more of the following:

Avoiding impacts.

Minimizing impacts by limiting the degree or magnitude of an action.

Rectifying impacts by restoration, rehabilitation, or repair of the affected environment.

Reducing or eliminating impacts over time.

Compensating for the impact by replacing or providing substitute resources or environments to offset the loss.

Modeling. Use of mathematical equations to simulate and predict real events and processes.

Multiple use. Use of water or land for more than one purpose.

National Environmental Policy Act (NEPA). An act requiring analysis, public comment, and reporting for environmental impacts of Federal actions.

Outlet. An opening through which water can be freely discharged from a reservoir to the river for a particular purpose.

Outlet Works. A combination of structures and equipment required for the safe operation and control of water released from a reservoir to serve various purposes, i.e., regulate stream flow and quality; release floodwater; and provide irrigation, municipal, and/or industrial water. Included in the outlet works are the intake structure, conduit, control house-gates, regulating gate or valve, gate chamber, and stilling basin. A series of components located in a dam through which normal releases from the reservoir are made. A device to provide controlled releases from a reservoir. A pipe that lets water out of a reservoir, mainly to supply downstream demands.

Precipitation. The total measurable amount of water received in the form of snow, rain, drizzle, hail, and sleet. The process by which atmospheric moisture falls onto a land or water surface as rain, snow, hail, or other forms of moisture.

Project. A single financial entity which can be composed of several units or divisions, integrated projects, or participating projects.

Pumping plant. Facility that lifts water up and over hills.

Reach. Any specified length of stream, channel, or other water conveyance. A portion of a stream or a river. The area of a canal or lateral between check structures. Sometimes also used to describe a contiguous stretch of river.

Recreational benefit. Value of recreational activity to the recreationist, usually measured in dollars above the cost of participating in the recreational activity (travel, entrance fees, etc). Used for valuing recreational resources produced through Federal projects, synonymous with the consumer surplus associated with the recreational activity.

Release. The amount of water released after use. The difference between delivery and release is usually the same as consumptive use.

Reservoir. A body of water impounded by a dam and in which water can be stored. Artificially impounded body of water. Any natural or artificial holding area used to store, regulate, or control water. Body of water, such as a natural or constructed lake, in which water is collected and stored for use. Dam design and reservoir operation utilize reservoir capacity and water surface elevation data. To ensure uniformity in the establishment, use, and publication of these data, the following standard definitions of water surface elevations shall be used.

Reservoir capacity. The capacity of the reservoir, usually in AF. Dam design and reservoir operation utilize reservoir capacity and water surface elevation data. To ensure uniformity in the establishment, use, and publication of these data, the following standard definitions of reservoir capacities shall be used. Reservoir capacity as used here is exclusive of bank storage capacity.

Reservoir inflow. The amount of water entering a reservoir expressed in AF per day or cfs.

Reservoir regulation (or operating) procedure. Operating procedures that govern reservoir storage and releases.

Reservoir surface area. The area covered by a reservoir when filled to a specified level.

Return flow. Drainage water from irrigated farmlands that re-enters the water system to be used further downstream. May contain dissolved salts or other materials that have been leached out of the upper layers of the soil. That portion of the water previously diverted from a stream which finds its way back to that stream or to another body of ground or surface water. The water that reaches a ground or surface water source after release from the point of use and thus becomes available for further use.

Riparian. Living on or adjacent to a water supply such as a riverbank, lake, or pond. Of, on, or pertaining to the bank of a river, pond, or lake.

Run. Seasonal upstream migration of anadromous fish. One or more lengths of pipe that continue in a straight line.

Runoff. The portion of precipitation, snow melt, or irrigation that flows over the soil, eventually making its way to surface water supplies. Liquid water that travels over the surface of the Earth, moving downward due to the law of gravity; runoff is one way in which water that falls as precipitation returns to the ocean.

Rural area. Predominantly agricultural, prairie, forest, range, or undeveloped land where the population is small.

Sediment. Any finely divided organic and/or mineral matter deposited by air or water in nonturbulent areas. Unconsolidated solid material that comes from weathering of rock and is carried by, suspended in, or deposited by water or wind.

Sensitive species. Species not yet officially listed but undergoing status review for listing on the USFWS official threatened and endangered list; species whose populations are small and widely dispersed or restricted to a few localities; and species whose numbers are declining so rapidly that official listing may be necessary. Redefine to match definition in table.

Spawn. To lay eggs, refers mostly to fish.

Spawning beds. Places in which eggs of aquatic animals lodge or are placed during or after fertilization.

Storage. The retention of water or delay of runoff either by planned operation, as in a reservoir, or by temporary filling of overflow areas, as in the progression of a flood wave through a natural stream channel.

Stream. Natural water course containing water at least part of the year. The type of runoff where water flows in a channel.

Streamflow. Discharge that occurs in a natural channel.

Surface water. Water on the surface of the earth. An open body of water, such as a river, stream or lake. All water naturally open to the atmosphere (rivers, lakes, reservoirs, streams, impoundments, seas, estuaries, etc.) and all springs, wells, or other collectors which are directly influenced by surface water.

Threatened. A legal classification for a species which is likely to become endangered within the foreseeable future.

Threatened species. Any species which has potential of becoming endangered in the near future.

Tributary. River or stream flowing into a larger river or stream.

Tunnel. Covered portion of spillway between the gate or crest structure and the terminal structure, where open channel flow and/or pressure flow conditions may exist. Portion of an outlet works between upstream and downstream portals, excluding the gate chamber. Tunnels are generally located in the dam abutments, and are concrete lined or concrete/steel lined. An enclosed channel that is constructed by excavating through natural ground. A tunnel can convey water or house conduits or pipes. A long underground excavation with two or more openings to the surface, usually having a uniform cross section used for access, conveying flows, etc.

Uncertainty. Describes situations where potential outcomes cannot be estimated based on historical events.

Urban area. Predominantly cities, towns or developed areas where the population is significant.

Urbanization. To become urban in nature or character; residential, commercial, and industrial development.

Water demand. Water requirements for a particular purpose, as for irrigation, power, municipal supply, plant transpiration or storage.

Water user. Any individual, district, association, government agency, or other entity that uses water supplied from a Reclamation project.

Watershed (drainage area). Surface drainage area above a specified point on a stream. Area which drains into or past a point. A geographical portion of the Earth's surface from which water drains or runs off to a single place like a river. The area of land that drains its water into a stream or river. All the land and water within the confines of a certain drainage area. Vertically, it extends from the top of the vegetation to the underlying rock layers that confine water movement. An area of land that contributes runoff to one specific delivery point.

Watershed divide. The divide or boundary between catchment areas (or drainage areas).

Wetlands. Lands including swamps, marshes, bogs, and similar areas such as wet meadows, river overflows, mudflats, and natural ponds. An area characterized by periodic inundation or saturation, hydric soils, and vegetation adapted for life in saturated soil conditions. Any number of tidal and nontidal areas characterized by saturated or nearly saturated soils most of the year that form an interface between terrestrial and aquatic environments; including freshwater marshes around ponds and channels, and brackish and salt marshes. A jurisdictional wetland is subject to regulation under the CWA. A nonjurisdictional is subject to consideration under the Fish and Wildlife Coordination Act.

Wild and Scenic Rivers Act (Public Law 90-542). The Wild and Scenic Rivers Act selects certain rivers possessing remarkable scenic, recreational, geologic, fish and wildlife, historic, or other similar values, for preservation in free-flowing conditions. Those selected under recreational criteria may have undergone some diversion or impoundment in the past. Selected rivers and streams have been placed into the National Rivers Inventory by Acts of Congress; others are proposed for inclusion into the system.

Wilderness. Tract or region of land uncultivated and uninhabited by human beings, or unoccupied by human settlements.

Wilderness resource. Resources identified in officially designated wilderness areas on Forest Service or BLM administered land.

Withdrawal. Water removed from the ground or diverted from a surface-water source for use. The process of taking water from a source and conveying it to a place for a particular type of use.

Yield. The quantity of water that can be collected for a given use from surface or ground water sources.

Appendix J

**Land Uses for Selected Potential
Candidate Sites**

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APPENDIX J

Land Uses for Selected Potential Candidate Sites

Land ownership was calculated for sites that scored well within each “area of opportunity” to present the relative effects of reservoir storage on private or public lands. Members of the stakeholder working group disagreed as to whether potential candidate sites were more or less desirable depending on the affected land uses (public vs. private). To avoid biasing the list of potential candidate sites in favor of purely public or purely private lands, this information is simply summarized herein to be used in future analysis.

Land ownership data was obtained from U.S. Bureau of Land Management (BLM) Surface Management Status Maps. These sources are 1:100:000 scale quadrangle maps on which land status is depicted. Table J-1 shows the percentage of Federal, State, and private land that would be inundated by a new reservoir.

Table J-1. Land Ownership Affected by Reservoir Footprint at Potential Candidate Sites

	Federal (%)	State (%)	Private (%)
Boise River Basin			
Dry Creek	3	0	97
Dunnigan Creek	7	1	92
Firebird	1	0	99
Grimes Creek	6	12	82
Indian Creek-Mayfield	3	7	91
Krall Mountain	88	1	10
Rabbit Creek	100	0	0
Payette River Basin			
Anderson Creek	100	0	0
Big Willow Creek	3	0	97
Dry Buck Creek	1	24	74
Lower Squaw Creek	9	0	91
Scriver Creek	99	1	0
Tripod Creek	85	10	5
Upper Shafer Creek	0	0	100
Wash Creek	100	0	0

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